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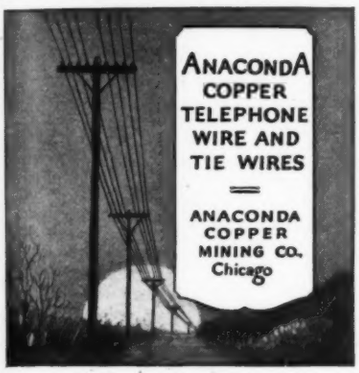

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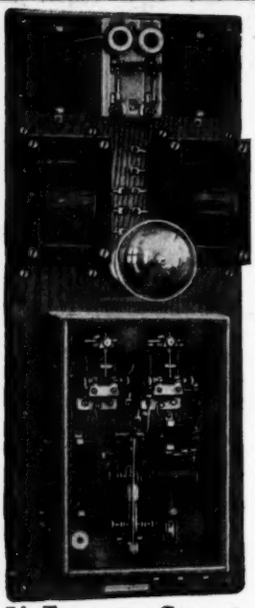

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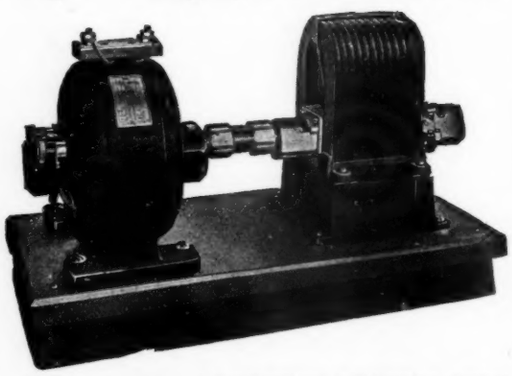

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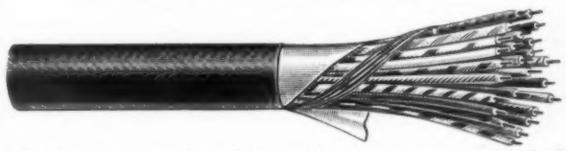

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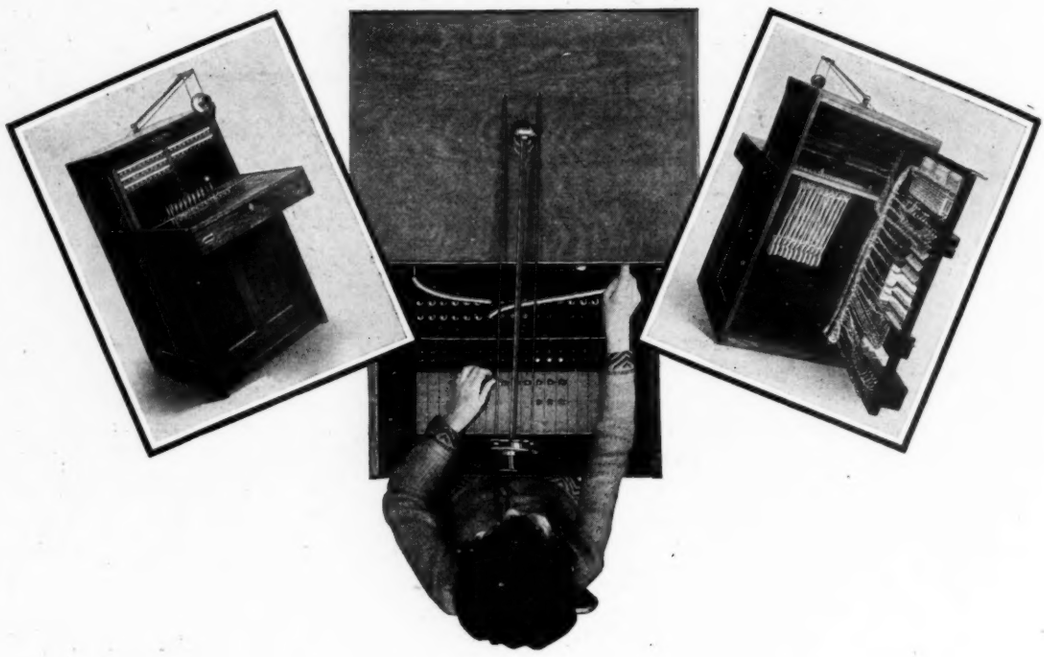

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CURRENT OPINIONS AND COMMENTS

The prediction was made at the Wisconsin telephone convention last month that, with the development of the nation-wide good roads movement, it would not be long before public agitation would begin for the planting of shade trees along the improved highways.

As this is likely to prove a serious matter to telephone companies, the suggestion was made that definite steps be taken to urge the planting of fruit trees, or low-growing shrubs, so that in the ordinary course of events they would be kept trimmed down to proportions that would not interfere with telephone lines.

* * * *

That this suggestion is most timely is indicated by the recent announcement of the Highways Information Service—the good roads movement propaganda bureau—that the building of paved highways in the rural districts of many states is to be followed by the planting of shade trees along such roads.

Pennsylvania and Minnesota are states where the matter is being encouraged especially. It is said that arrangements are being made to plant 30,000 trees in Minnesota alone.

* * * *

As was pointed out in the Wisconsin convention, this tree-planting along country roads is liable to cause telephone companies a vast amount of trouble. As it seems sure to come, the only thing the telephone interests can do is to try to direct it so the least amount of embarrassment to service will result.

Fruit trees—apple, cherry, plum, etc.—are usually kept trimmed comparatively low, so stepladders may be used in picking the fruit, and they spread out rather than grow in height. This would furnish the shade the traveling public will demand along state roads, and yet not seriously interfere with the telephone lines that parallel the highway.

* * * *

As roadside planting seems inevitable, this suggestion promises a solution that will be more favorable to telephone and other utility men. They should watch the situation and exert their influence in guiding the state tree-planting development in that direction.

Paved roads radiate much more heat on summer days than do dirt or gravel roads, which fact will induce people to demand shade trees. The old objection that spreading tree roots would crack the asphalt surface—and that, therefore, no trees should border the highways—no longer holds good, as this rarely happens on city streets, and the same precautionary measures will be taken.

* * * *

Highway builders say it is only a question of time when every state will have an extensive system of paved roads lined with shade trees. The Wisconsin suggestion of encouraging the planting of low-growing fruit trees that will not interfere with overhead wires should appeal to telephone interests as a useful idea to get behind and popularize.

Besides, there is a good talking point that the public would doubtless prefer to ride between rows of trees that might furnish the passing traveler a snack of fruit.

* * * *

Because of their female operators, telephone companies will have a peculiar interest in the United States Supreme Court decision declaring unconstitutional the law fixing a minimum wage for women in the District of Columbia.

Minimum wage laws are now in effect in Kansas, Arkansas, Minnesota, Wisconsin, North Dakota, Colorado, Utah, Arizona, Oregon, Washington, California and Massachusetts. Bills are also pending before the legislatures of New York, Ohio and New Jersey for a minimum wage act, and in Illinois a strong effort is being made to establish an eight-hour day for women, in which telephone operators are taking a keen interest.

Just what bearing this decree of the highest court in the land will have on existing state laws is problematical. Women's organizations fear it will injure women's status in the working world, possibly lowering their wage or increasing their hours of labor.

* * * *

Broadly speaking, the court holds that under the Constitution employer and employe must be left free to make contracts with each other. Liberty of contract is guaranteed under the Constitution. Furthermore, the act under discussion was considered discriminatory, in that it favored women who, the opinion stated, are

today as fully able to make contracts as are men.

* * * *

The annual report of the Western Union Telegraph Co., issued April 1 indicates that this corporation is growing restive under government restrictions of its cable business. The radio is cutting in on the cable tolls, making rates 30 per cent less than the cable rates, and is not subject to the same restrictions which the government places on telegraph companies under the Kellogg act.

In its complaint of government interference the Western Union's report finds it hard to understand the bureaucratic viewpoint of the average government official who sticks to a written rule or tradition no matter what the consequences.

* * * *

The report says one good thing in this connection, when it remarks: "The training of government employes dealing with foreign affairs is the result of habit and tradition. Both the habit and the tradition of government tend towards inertia—that property of matter by which it tends when at rest to remain so, and when in motion to resist change of direction. This is probably good diplomatic practice, but business becomes pale and anæmic under such procedure."

That is one way of saying that too much government interference stunts business development. "Pale and anæmic" are mild terms to describe the blight that befalls business hampered by too much government restraint, but probably the Western Union did not care to go too far in criticizing the government department which regulates its toll business.

Apparently, the disposition to have the government interfere with business and personal affairs is beginning to attract general attention—not to say hostility. Citizens in the East are organizing a league for the general betterment of national conditions, and two of the six planks in its tentative platform deal with this subject.

These sections in the declaration of principles assert the time has come "to halt the tendency of governmental interference in every domain of life," and, furthermore, "to maintain individualism."

* * * *

Laws which give the government the right to take a hand in the affairs of a class of citizens frequently result from an effort of that class to obtain government aid. An appeal is made to Congress to help a certain class, and, if the appeal is granted, Congress provides that there shall be regulations to be lived up to, in charge of a bureau of office-holders, which, of course, means more political patronage—more jobs to be handed out.

This, of course, is truly characteristic of the political system of never granting a favor without getting something in return.

* * * *

It will be interesting to observe the development of this organization which bears the somewhat indefinite name of "The Liberal League." The Chicago Tribune already has adopted three of its principles and carries them daily on its editorial mast-head. They are:

"To renew and build up respect for the law. To halt the tendency of government interference in every domain of life. To prevent the destructive waste in government administration by the use of scientific methods, illustrated by the national budget."

All are excellent principles. The trouble is we have too many laws now. The second plank will receive general support. Taxpayers will welcome the third principle with a cheer, and for all the more reason that the more the government "regulates" individuals, the more money it takes to run the governmental machine.

That is the same as saying that the less regulation the less will be the taxes.

Special Transportation Equipment

Interesting Description of the Development and Application of Motor Vehicles and Their Associated Apparatus to Outside Plant Construction and Maintenance Work—Published Through Courtesy of the Bell System Technical Journal

By J. N. Kirk

Outside Plant Engineer, Department of Operation and Engineering, American Telephone & Telegraph Co.

In this paper is described in a general way the interesting application of motor vehicles and their associated apparatus in connection with outside plant construction and maintenance work, outlining through the successive stages of development what has been accomplished in this respect up to the present time.

In order to present a comprehensive picture covering this field of activity, the more primitive types of equipment, together with the manual methods of doing work, are shown in comparison with representative instances of higher development during the past few years in which this phase of the work has been given particular consideration.

The telephone system is different from most public utilities in that it is responsible for a universal service throughout the United States. Wherever the highways and byways may lead, and in many instances where no traveled way could well exist, will be found the familiar and indispensable telephone, with the wire and cable on pole line and in underground conduit. Irrespective of the remoteness of the territory, of the subsurface or the climatic conditions involved, there must always be found a way to construct and maintain the telephone plant.

To install this widely-distributed plant and continuously safeguard the service in response to the ever increasing public demands, it is essential that facilities be provided for the prompt and safe transportation of quantities of heavy, bulky materials and gangs of men to any point in the telephone system during emergencies as well as under normal conditions, and that provision also be made to supplement the necessary manual operations in every way possible by the proper adaptation of mechanical apparatus.

It might be helpful in this consideration to compare the construction problems of the telephone companies with the production problems of any large manufacturing concern. The transportation of raw materials, of the products during manufacture, and of the finished products, together with the application of labor saving machinery in this connection, unquestionably constitute a very real problem to the manufacturer. In this case, however, all of the activities are so completely concentrated and under his control to such an extent as to greatly simplify the efficient and economical operation of all units involved.

Let us consider this large, self-contained manufacturing plant completely dismembered, with the various machines

and manufacturing processes widely scattered over distances of many miles instead of a few feet, and we have a very fair comparative picture of the relative importance of the telephone companies' transportation and construction apparatus problems in providing and maintaining efficient service. Because of this fundamental condition which obtains in the telephone industry, all outside plant machinery units must be portable, of comparatively small capacity and yet of high efficiency.

To meet these exacting requirements the Bell system is ever on the alert to avail itself of every possible advantage in the development, adaptation and application of transportation equipment, machinery and methods. By means of this mechanical equipment the heavy units of material are handled with ease, safety and dispatch by the gangs, leaving them fresh for the lighter detail work requiring dexterity but practically no heavy, straining effort.

When one speaks of automotive and construction apparatus or machinery developments as applied to the telephone business, such development must naturally appeal to many as being foreign to and rather difficult to closely associate with the furnishing of telephone service. We are, however, in the midst of a truly mechanical age, and the more we study and experiment with the adaptation of mechanical equipment to the new lines of telephone activity, the broader seem to be the fields of applicability and the more evident becomes the necessity of closely coördinating the various phases of adapting commercial equipment and developing new types of apparatus for telephone use.

It is the intention in the following to outline a number of the more important developments associated with the adaptation of mechanical methods to outside plant construction and maintenance work. In presenting the picture contrasting the construction methods of today with the earlier practices, one cannot but note the remarkable developments and improvements which have come about.

Fig. 1. Horse-Drawn Vehicle in Telephone Service—Courtesy "Telephone Review."

Transportation Equipment.

It is reported that some 40 years ago, after deliberating for an entire day the directors of one of the now large associated Bell companies decided that the volume and nature of the company's business warranted the purchase of a horse and buggy. Fig. 1 represents such an outfit as was probably purchased and which, in connection with the telephone business of today, is about as rare as the motor vehicle is common-place.

As representative of some 15 years later we have illustrated in Fig. 2 the one-horse, light construction wagon, the predecessor of the three-quarter and one ton motor vehicles which now handle light construction, certain classes of station installation work, section line work, etc. It is interesting to note the improvised reel on the rear wheel of the wagon and also the warning "Be Careful of Accidents" which is printed on the side of the body. These features are indicative of the fact that the labor-saving equipment and "safety first" movements which have now reached such broad proportions in the telephone system were germinating at least as far back as 1896.

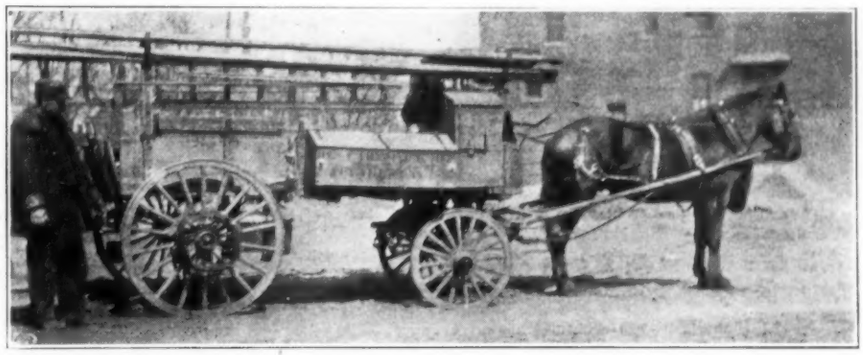

Fig. 2. Light Construction Truck of About 1896.

The heavy construction gang unit of 1896 shown in Fig. 3, brings to mind the original method of employing large gangs which, with practically no labor-saving equipment available, necessarily had to handle the heavy features of outside construction work by "main strength."

In the interval between the advent of the horse-drawn vehicle and that of the motor vehicle into the telephone business, bicycles were used to some extent. These comparatively slow, energy-consuming vehicles, however, soon were superseded by the motorcycles which for a few years, principally the period between 1914 and 1920, were considered a very necessary factor and played an important part in connection with the maintenance and, to a lesser extent, the construction of the telephone plant.

Several hundred machines of these types were at one time used by the various companies, but experience has indicated that their use results in high maintenance, that they present many features hazardous to the employes and general public, and that they are more or less detrimental to the health of those who use them to any great extent.

Fig. 3. Heavy Construction Truck Carrying Gang, Tools and Materials, 1896.

While the motorcycles have the advantage that they can generally worm their way through traffic more readily than an automobile, this advantage is completely overbalanced by the universal tendency to speed in riding motorcycle, by the many serious accidents from skidding on wet pavements, the difficulty in riding over roads having deep wheel tracks, the entire lack of weather protection for the rider, and the instability of the sidecar outfits when turning corners. The use of motorcycles by the telephone companies is now practically, if not entirely obsolete.

The many adaptations of the Ford car have proven in over the motorcycle by a large margin from practically every viewpoint. There are now more than 5,000 Fords in the service of the associated companies. This group of cars is often referred to in telephone parlance as the "mosquito fleet" and it is interesting to note that the building up of this fleet had its inception as late as about 1914.

Approximately 80 per cent of these Fords are equipped with various types of boxes and specially designed bodies

which permit the carrying of light loads of materials and tools. On account of their large numbers, low operating costs and remarkable ability to negotiate almost impassable roads, they go far toward coordinating the operation of the widely scattered units of the telephone system.

In telephone work the Ford runabouts average approximately 9,000 miles per car per year. Normally, their net loads vary from 150 pounds to 750 pounds, although in emergencies they are sometimes seriously overloaded.

Fig. 6 shows a telephone company Ford seriously overloaded while transporting splicers' equipment. In fact, the net load carried by this particular car, including the four men, was about 1,300 pounds. This illustrates a case where the service for which the vehicle was originally supplied, has outgrown the load-carrying and space capacity of the unit. Of course, if this practice were permitted to continue or become general, it would be expensive, both from a motor vehicle operating and gang service viewpoint, not to mention the hazard presented in carrying two of the men in such a precarious position.

It is apparent that in order to find a particular item of tools or material on this car it might be necessary to completely unload.

As regards the effect upon the car, the tires frequently blow out, the front construction requires constant attention to keep it tight, the springs depress to the extent that the fenders are permitted to ride upon the tires, the steering is difficult, etc.

As soon as it was recognized that this particular service was outgrowing the transportation unit, a special side box body upon a high-speed, one-ton Ford truck was developed and is now undergoing service trials in order to properly provide a unit having ample space and load-carrying capacity. Fig. 7 shows some of the latest ideas in the design of such an outfit. Note the ample kerosene tank slung under the rear end of the body with a convenient filler pipe on the rear end of the left side box and a faucet under the tank with hose connection for filling the splicers' furnaces with oil.

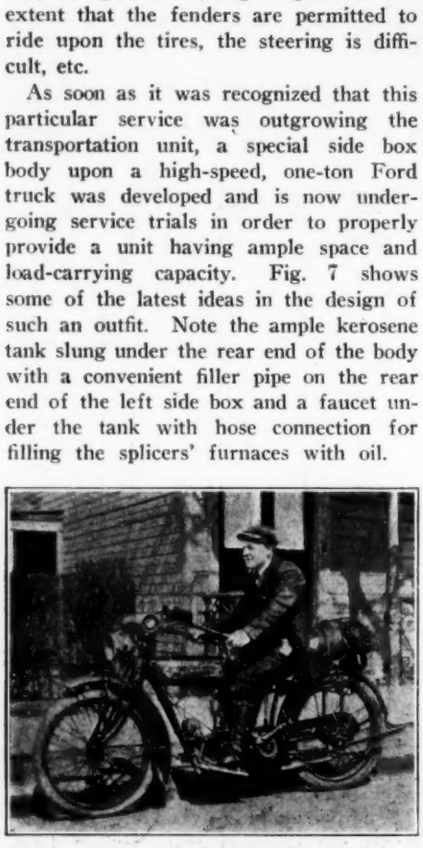

Fig. 4. Motorcycle Which Was Used for Maintenance Work—Courtesy "Telephone Review."

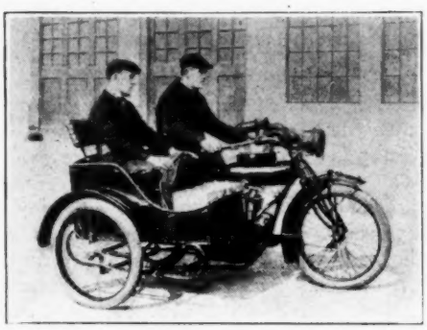

Fig. 5. Motorcycle with Sidecar Used for Instrument Installation Work— Courtesy "Telephone Review."

As an illustration of a Ford runabout especially adapted for the work of serving an installer and helper in placing telephone sets together with the inside wiring and the drop wires from pole to house, Fig. 8 is presented.

It will be noted that in this design the body extension back of the seat is limited in order that only a small weight over-hang back of the rear axle is possible. This is important in order not to

Fig. 6. A Seriously Overloaded Ford Carrying Splicers and Their Supplies.

overstrain the rear spring. The body design is made as light in weight as practicable in order to provide ample net load carrying capacity.

There are now on the market innumerable Ford accessories which are claimed to correct all of the ills to which the Ford is subject. Careful studies and field trials, however, indicate that by far the greater portion of these devices are of no advantage and many are actually detrimental to the efficiency and safety of operation. However, through careful selection and in some cases modification of certain of these accessories to meet specific telephone service requirements, it now seems probable that somewhat more efficient, economical and safer operation will be realized.

About 1910, carefully prepared studies indicated the practicability and economy of utilizing gasoline driven motor trucks for the transportation of men, supplies and construction equipment of various kinds.

The first automobile trucks were proven in over horse-drawn vehicles on the basis of using the trucks as purely transportation units. However, it soon developed that there were many possible economical applications of the motor truck in connection with the placing, moving and removal of pole lines, aerial cables, underground cables, wires, etc., bringing into use the many accessory devices such as winches, derricks, earth-boring machines, various types of trailers, pumps and other safety and labor-saving apparatus. The importance of some of these devices in telephone construction work will later be described.

The motorizing of the Bell system has been very rapid since 1910. Because of the widely scattered distribution of outside telephone plant it is necessary, in transporting the workmen, together with their tools and materials, to employ in the Bell system approximately 3,000 trucks and tractor-trucks of from ½ ton to 15 tons capacity.

These together with the "Mosquito Fleet" and the relatively small number of supervisory passenger cars of a better class, make a total motor vehicle strength of over 8,000 units in the Bell system. In addition to this company-owned equipment, there are employed annually by the associated companies several hundred hired motor vehicles.

In the neighborhood of 25,000 employes depend upon the system's transportation equipment as an indispensable part of their daily work—that is, in its capacity of labor-saving machinery as well as in moving the men, together with their tools and materials, from their bases of operation to the job and back, and also between jobs.

The annual cost of providing this transportation service for the Bell system is in the neighborhood of 12 to 14 million dollars. Although this total is a sizable amount, it is actually small when compared with the service rendered and when considered upon the basis of slightly less than $6 average cost per car per day used, including all units from 750 to 30,000 pounds net carrying capacities.

Studies are constantly being made in connection with the opportunities presented along the line of increasing the mechanical efficiencies and lowering the main-

Fig. 7. Ford Truck Equipped with Modern Side Box Body.

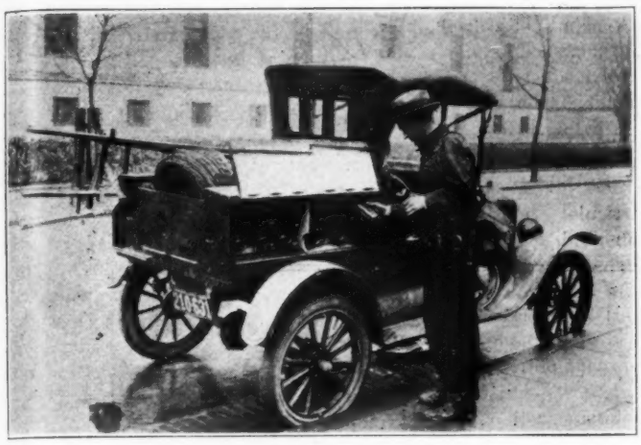

Fig. 8. Ford Runabout of the Latest Type in Telephone Installation Service.

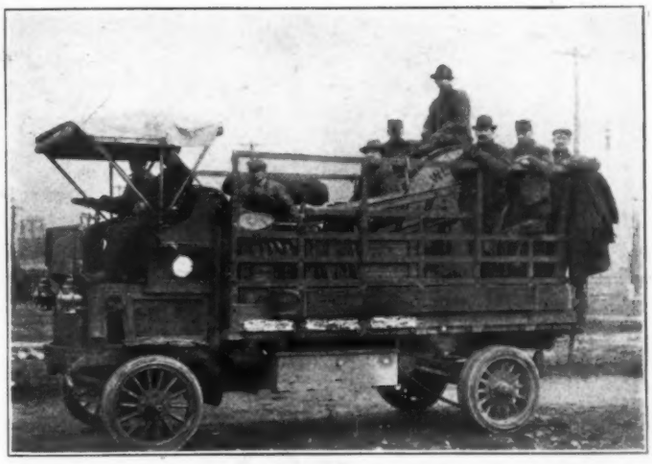

Fig. 9. Heavy Construction Gang Truck, 1910. One of the First in Telephone Service.

tenances costs of the various units. As the result of this work much is being accomplished in conserving the working time and energy of the men by employing proper labor-saving facilities with the motor vehicles in order to do practically all of the slow, heavy work by proper application of power from the motor vehicle engines. The continuation of this field of study should tend toward offsetting the constantly increasing construction costs.

The realization of the most important savings in the motor vehicle field—that is by making the truck units serve the gangs as labor-saving machines in addition to their use as transportation equipment—involves the use of winches driven from the truck engines, derricks for all kinds of pole work, for handling loading pots, etc., suitable trailers for transporting poles, reels of cable and other materials, the use of quick-acting safe drawbars for trailing loads behind the trucks, the use of the truck equipment for pulling the proper tension into aerial cable strand and for pulling in the aerial cable, the use of the power equipment with suitable accessory appliances for pulling-in or removing underground cable of power-driven collapsible reels for quickly pulling down and coiling up open wire, employing improved methods with the assistance of the power equipment for the handling of all heavy loads (such as reels of cable on and off trucks), and for numerous other uses.

In addition to these savings, important economies can be realized by equipping the construction units with suitable bodies to meet the various construction requirements.

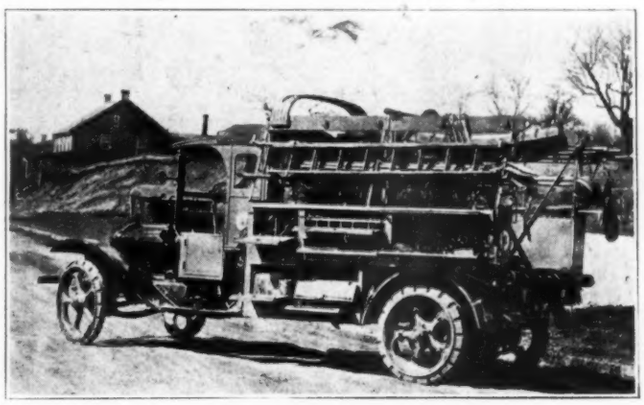

Fig. 12. Latest Type Two-Ton Heavy Construction Unit Showing Tool, Material and Locker Compartments Open.

In reviewing the progress in the use of motor vehicles it is interesting to note that in the first few years it became apparent that in order to properly utilize the units it would be necessary to equip them with special side box bodies, winches, derricks, etc. Designs for these various items of equipment were prepared in accordance with the best information at hand and the resulting units of about 1914-1916 were so heavy and bulky that some of the three-ton trucks carrying this equipment were loaded practically to capacity exclusive of their complement of material, tools and men.

This led to the introduction of five-ton truck units in heavy construction work. Fig. 10 shows an old type of body equipment in which the arrangement and size of the side box compartments are such that practically no free load capacity was available. A rear view of this outfit would more clearly indicate the absolute lack of space for carrying materials such as reels of strand and cable, etc.

In the past few years and at the present time the developments are toward lighter weight, more efficient bodies and labor-saving equipment as is illustrated in Fig. 11 and later in this paper under the discussion of winches.

The use of this equipment is permitting a material reduction in gang sizes which

Fig. 10. An Old Type of Side Box Body Construction.

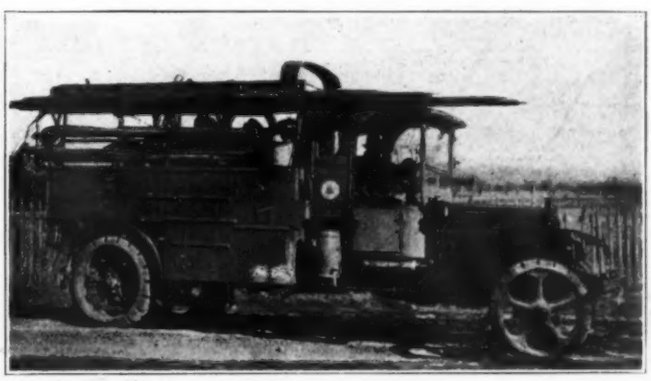

Fig. 11. Latest Type Two-Ton Heavy Construction Unit.

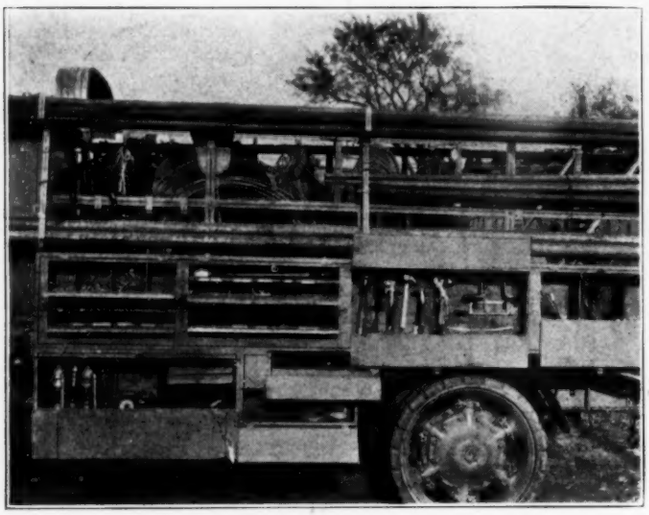

Fig. 13. Side Boxes Opened Showing Arrangement of Tools and Materials.

in itself further reduces the weight to be carried on the truck. The net result is that instead of a three or five-ton unit weighing loaded 18,000 or 25,000 pounds, it is possible to handle the work more satisfactorily with 2 or 2½-ton units weighing in the neighborhood of 12,000 pounds.

The advantages gained by this reduction in truck size are large Not only is the initial and operating cost of the equipment much less but the more important feature is that these two-ton trucks can penetrate and economically operate in territories where a heavier unit could not negotiate the roads. Many country bridges will not carry more than six tons.

Also, on the narrow country roads, the comparatively shorter wheel base of the two-ton truck permits easier turning around or maneuvering.

Figs. 11, 12, 13 and 18 present illustrations of some of the latest developments in line construction truck design and associated equipment. The particular type of body shown has been selected as an example from the various types employed by the telephone companies because of its broad use and because it so well illustrates the general development which is taking place.

The outfits shown, except that in Fig. 13, are of 2 to 2½-ton capacity.

Perhaps the most outstanding feature is that of the rugged and compact body arrangement, each detail of which has been specially designed to meet a particular construction need.

The tool and machinery equipment is applicable to the most exacting requirements of the average outside construction job. The arrangement is such that all necessary tools and materials can be carried in a safe and orderly manner, and the truck power plant, through the introduction of suitable winch equipment, is available for the heaviest duty, slow speed work as well as the lightest duty, high speed work which may be encountered.

A more complete description of some of the principal features embodied in this combination material distributing, tool and gang delivering unit, power plant and general work shop, may be of interest.

With regard to some of the more important points incorporated in the body: Every construction crew must carry a large number of different comparatively small materials and tools. The old method of piling the mixed tools and materials in large boxes carried in the truck body led to much lost time on the job in looking for particular items as required in the course of the day's work. The foreman could never be quite sure as to just what he had on his truck, which resulted in two unsatisfactory and uneconomical conditions:

First, otherwise unnecessary extra trips were made between the job and the storeroom to secure materials thought to be on the truck but which could not be located when needed.

Second, due to the lack of orderly arrangement, much more material was generally carried than was actually needed, which resulted in excessive loads upon the trucks and, in the aggregate, an unnecessary large material supply balance for the company.

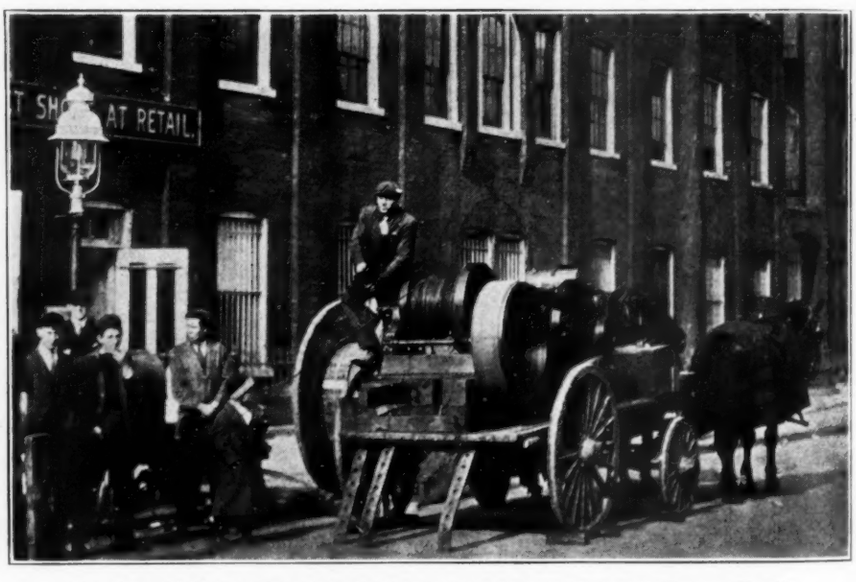

Fig. 16. Old Type Gasoline Engine Driven Winch on Horse-Drawn Truck.

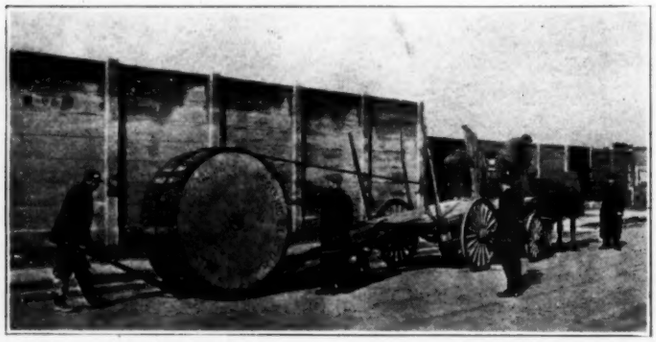

Fig. 14. Loading Cable Reel on Horse-Drawn Truck by Means of Two-Man Power Hand Winch.

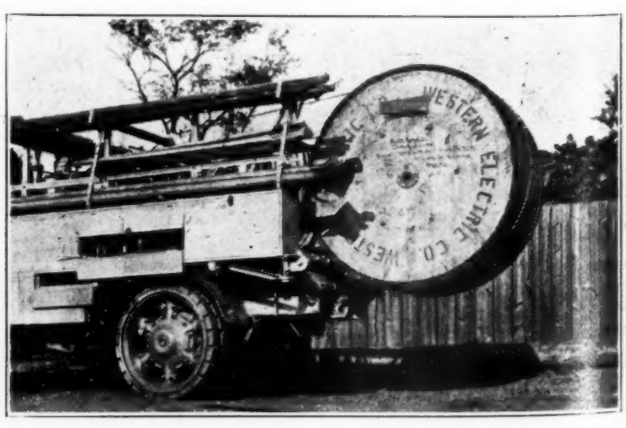

Fig. 15. Loading Cable Reel, by Use of Sheave and Spindle with Rope Sling, Without Skids.

The new type of body is the result of careful field study. In this particular one, of the several designs necessary to meet the requirements of the subdivisions into which the construction work naturally divides itself, it will be noted that side boxes are provided of such sizes as to satisfactorily house in an orderly manner the small tools and materials, suitable hangers and racks are arranged to carry the larger tools and materials, space is available for chauffeur's chains, tools, grease, etc., and compartments are also provided for the extra clothing and lunches of the men.

Safe and readily accessible locations are provided for the heavier equipment, such as members of the pole derrick, digging bars, shovels, ladders, etc. Fig. 13 shows a close-up view of the orderly and readily accessible arrangement of tools and materials.

It should be particularly noted in this connection that the truck body arrangement is such that with its full complement of tools and materials there is available a maximum of free load space.

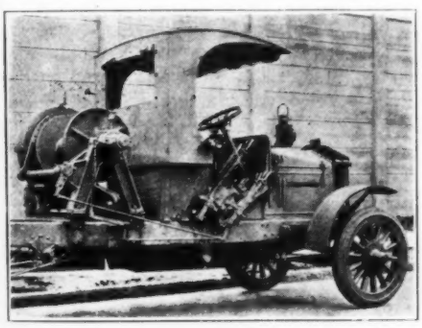

Fig. 17. Old Type Heavy Winch on Five-Ton Truck Chassis.

With the further thought of conserving the health of the crew when operating in sections where suitable drinking water cannot be obtained, a sanitary keg is provided for carrying an ample supply of pure water. Paper drinking cups are used. A safe, clean, dry, convenient location for the "First Aid' kit is built into the top of the cab.

A small vise for the use of the gang and chauffeur is attached to one of the running boards. The cab also incorporates every possible feature of safety and protection to the driver, and a tarpaulin is so arranged as to provide maximum protection for the men in case of bad weather.

As may be noted in Fig. 12, a spindle and sheave have been provided which can be mounted across the top body rails either at the rear end or the middle of the truck in order to permit the use of the winch rope for loading and unloading cable reels or reels of strand without the use of skids.

Fig. 14 shows the old manual method of loading a reel of cable on a horse-drawn truck. This operation involves the slow and laborious method of rolling a two or three-ton load up an inclined plane by means of a hand winch. It should be noted that six men are engaged in handling this reel and that at least two of them must of necessity occupy positions which present more or less hazard in the event that the winch rope should break or some part of the mechanism otherwise fail to hold the suspended load.

This familiar method of winch operation by means of a manila rope, laboriously wound upon a ratchet stop drum by two men, was limited entirely to loading and unloading heavy items of material from the truck platform. For this purpose it was, however, a great improvement upon former methods even though it was very slow and not entirely free from danger.

In Fig. 15 a similar reel of cable is being loaded on a motor truck by means of the engine operated winch in conjunction with the sheave and spindle feature previously mentioned. In this case the possibility of hazard to the workman is completely removed.

The reel is loaded in a fraction of the time required by the old manual method and the entire operation, after adjusting the winch line, is completed by the chauffeur from his position in the cab. In the event that the winch rope or other parts of the mechanism should fail, the result would be a vertical drop of the reel of cable, perhaps slightly damaging the reel, but the employes are not required to take positions where they are in any danger.

Fig. 16 shows the first type of power winch application to telephone construction work. This unit consisted of a slow speed, heavy duty, single cylinder, gasoline engine unit permanently mounted on a horse-drawn truck. It was used principally for pulling in underground cable and was a great improvement over the former method of pulling by means of horses. It will be noted that on this winch steel rope was used.

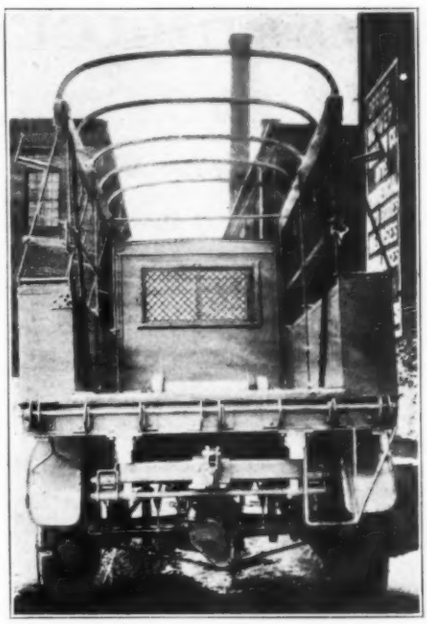

Fig. 18. Rear View of Latest Type Two-Ton Construction Truck Showing Winch Below Cab Window. General Clear Body Platform Space Is Evident.

With the engine-propelled truck came the possibility of utilizing the truck power through a special power take-off to drive a winch which would not only be more powerful, but also much more rapid in action and distinctly superior with regard to the important feature of control.

Fig. 17 illustrates one of the original types of power winch on a five-ton chassis.

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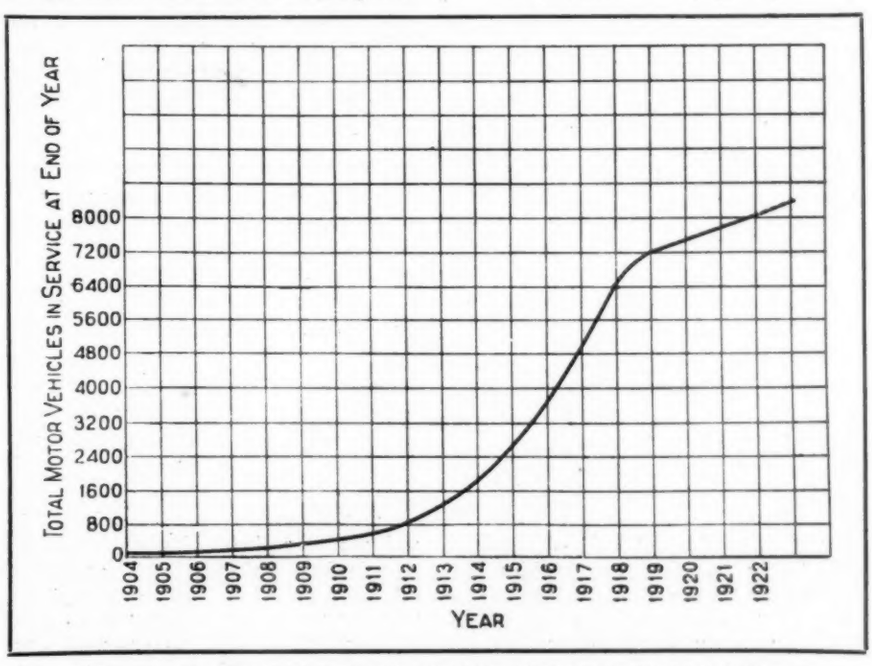


Fig. 19. Curve Showing Growth of Motor Vehicle Fleet in Bell System.

Commercial Service Bureau Work

Plan for Increasing Use of Toll Facilities by Business Houses—Survey of Subscriber's Equipment for Providing More Efficient Service—Paper Presented at District Meeting of New York Up-State Association at Syracuse

By L. E. Williams

District Commercial Representative, New York Telephone Co., Syracuse, N. Y.

It is my purpose to outline briefly commercial service bureau work, how it has already been tried out and its results in our territory, and how it may be successfully used in the territories of your respective companies.

The work was first conceived as a medium for increasing the use of toll facilities; this greater use of toll facilities to be brought about by suggested telephone selling methods that might be applied to advantage by the sales or distribution branches of the larger commercial organizations.

Later it was realized that in order to make this toll stimulation work of a lasting effect, it would be necessary to obtain, not only the co-operation of the subscribers, but also the subscribers' utmost confidence. It was believed that this confidence would be more readily forthcoming if a direct, tangible service was rendered to them. With this in mind, the telephone service survey of the subscribers' equipment had its conception.

This telephone survey consists of looking over the existing telephone equipment of a subscriber, ascertaining if it is conveniently and properly located and if it is efficiently and properly used. Considerable attention is given to the quality of maintenance, and of the operating service furnished to the subscriber by the telephone company. Providing it is found that the maintenance is faulty, immediate action is taken to remedy this difficulty. Also if traffic difficulties are being experienced by the subscriber, the necessary attention to this fault is given immediately.

Definite recommendations are outlined to the subscriber to remedy any faulty operation of his service caused by his own employes. Suggestions are also offered which, if put into effect by the subscriber, will result in economies and greater efficiency being realized in the handling of certain phases of his business.

The results of the survey are compiled in a written report and are presented to the head of the concern whose service has been observed. In securing the details and data for this report, numerous contacts are made with different employes and officials of the subscriber's "business family," which offer excellent opportunities for creating good will and establishing in the minds of these people a more correct and better understanding of the telephone company as a whole.

Soon after this survey work was established, it became evident that the commercial service bureau work was comprised of two general phases; toll stimulation and the establishing and maintaining of proper relations with subscribers.

The toll stimulation results can be measured more or less accurately by an immediate increase in toll usage, which is usually evident soon after the commercial service work is applied. The results that can be accomplished in cementing good public relations are not always immediately apparent but oftentimes outcrop advantageously in the most unexpected places and at the most opportune times.

A few cases taken at random from Syracuse and the surrounding territories are cited to indicate the possibilities of accomplishment along parallel lines awaiting you in your exchanges.

AN EXECUTIVE'S WORK.

It is the business of every executive to know his men and, knowing them, to place them so that they can use their abilities with the most effective results. Executives mistake their duties or fail in their purpose if they do not so place their men that they rouse all their dormant power and bring the best that is in them to the surface.

The duty of the executive is to plan, to adjust; but the organization does the work. Improperly placed men do not reach their highest points of endeavor. Where an organization fails, it is more often the fault of the executive than of the men.—W. H. Woodin, President, American Car & Foundry Co.

We have a branch of a wholesale rubber company, whose telephone equipment consists of an individual and auxiliary line, that, during one month recently, made telephone sales amounting to $22,686 at a distribution cost of approximately 1 per cent. The monthly toll revenue received was $260.

A wholesale seed house whose telephone equipment consists of an individual and auxiliary line formerly handled its sales in the suburban districts by two field salesmen working upon a commission basis. This year it handled these sales from the home office by telephone with better results than had been experienced in the past by having the salesman in the field.

This manner of handling its business resulted in a toll revenue increase of 150 per cent, yet the cost to the subscriber was considerably less than the commissions formerly paid to the field representatives.

A flour milling concern, which is an individual line subscriber, accepted suggestions that we offered relative to supplementing its eight field salesmen's efforts throughout New York state by telephone selling from its Syracuse office.

It is interesting to note in this particular case that the manager of the company called at the Syracuse office and registered a complaint relative to a proposed change of its telephone number. This number change was necessary in connection with the establishing of the machine switching central office in Syracuse. At the time that the complaint was made it was believed that this subscriber could make greater use of toll facilities in connection with increasing and stimulating its own business and for this reason the complaint was handled by the commercial service bureau.

The necessity of the number change was explained satisfactorily to the subscriber and at the same time a definite selling plan was also offered. The manager of the flour milling company thought so well of the plan presented that immediate steps were taken to establish it.

This subscriber started its telephone selling on August 8 by filing 64 long distance calls. Fifty-eight of these calls were completed and 45 per cent, or 26 calls, resulted in sales. The 26 sales involved 4,750 barrels of flour, two orders being of 1,000 barrels each. The total orders secured on this one day through telephone selling amounted to approximately $40,000. The toll service cost to the subscriber was $78.40, the percentage of toll cost to sales being 1/10th of 1 per cent.

A local retail hardware company, a subscriber to a private branch exchange of medium size, was using under five dollars' worth of toll service per month. A service survey was made for this subscriber during the spring months, and the suggestions and recommendations relative to improving its service generally, which were brought out in the survey, were so acceptable that it was readily interested in a plan for increasing sales by the methodical use of the telephone.

At our suggestion this retail store created a telephone department to handle the sales of its "electrical hardware," not only in Syracuse but throughout the surrounding suburban towns. This hardware company, up to this time, had never made any definite effort to make sales other than "over the counter."

After creating the telephone department, it engaged four outside salesmen to handle the sales of vacuum cleaners, electrical washers, mangle irons, dish washers, fans and other electrical household appliances. In order to obtain the benefits of the full time of these outside salesmen, the head of the telephone department called the residence subscribers in the different suburban towns and secured, through the medium of these telephone calls, live prospects which later turned over to the salesmen, resulted in a higher percentage of actual sales. Incidentally this subscriber's toll service immediately increased to an average of $40 per month.

We have in mind another small private branch exchange subscriber, selling investment securities who, at our suggestion and in order to give telephone selling a thorough trial in connection with the sale of securities, called in from his territory his six field salesmen and had them cover their territory by telephone calls instead of in person in connection with the marketing of a certain bond issue.

This subscriber filed in one day a total of approximately 250 calls. Of these calls, one list of 100 calls was filed for completion to his customers' residences at about 8 o'clock in the morning. A second list of about the same number of calls was filed for completion at about 9 o'clock in the morning to different business and banking houses in this territory. After these two lists had been completed, a third list was compiled by the subscriber, made up of his customers that his salesmen had not talked with previously and was filed for completion later in the day.

It is understood that $100,000 worth of bonds were sold before noon of the day in question and over $200,000 worth of securities were distributed before the end of the day. Of his entire list of customers, this subscriber reached all but one. The failure to reach this one customer was caused by the party being away from home the entire day.

All of the calls placed were "short haul" to nearby points. The toll revenue secured for this one day's calls amounted to $81.80. This particular subscriber has increased his monthly toll usage by telephone selling over 100 per cent each month this year compared with his toll usage over similar periods of time since he started business in 1918.

From the foregoing, it can readily be seen that commercial service bureau work can be applied to the smaller subscribers with outstanding results. Along this same line of thought I will outline hereinafter some of the accomplishments that have been realized with a few of the larger users of telephone service. In this connection the case of a state-wide milk and ice cream producing industry with headquarters located in a nearby city is cited.

The work for this particular subscriber was started by making a survey of its equipment which made possible suggestions and recommendations for improving its service. A telephone selling plan was suggested and was put into effect by this concern in connection with the wholesale distribution of its ice cream products to different retail dealers in the outlying towns.

On the first morning that this subscriber started the wholesale distribution of its ice cream by telephone selling, 700 gallons of ice cream were sold in a period of one hour at a cost to the subscriber of 4 per cent. This subscriber's toll usage has increased from approximately $1,000 per month at the time the telephone service survey was made, to an amount greater than $2,000 per month at present.

A large manufacturer of electrical specialties was experiencing considerable equipment trouble with his service, caused entirely by the improper location of his private branch exchange switchboard. Since this subscriber's private branch exchange was installed, heavy machinery had been placed on the floor directly underneath the switchboard which, because of excessive vibration, interfered with the proper operating of it. This, coupled with the fact that the subscriber's private branch exchange operator was somewhat hostile to the telephone company and unduly critical, proved unnecessarily burdensome to our plant department in maintaining the service in a satisfactory manner.

Efforts had been made to convince this subscriber that its service could be greatly improved if the location of the board was changed, but were unavailing. At the time the survey was made this service interference was outlined to the subscriber in detail along with many other things of vital importance to his service. The officials of the concern called in their plant engineer and gave the commercial service bureau's representative authority to choose, from the telephone company's standpoint, the best location for the switchboard and instructed their plant engineer to prepare that location as would be outlined by the telephone company's representative.

It developed that the best location in this subscriber's establishment was the private office occupied by its attorney. This office was taken for a switchboard room; soundproof walls were erected, the lighting arrangement changed and the board was relocated in the new space. Since that time there has been no equipment difficulty experienced and the subscriber has admitted that his service has been wonderfully improved. This subscriber has increased his toll usage, brought about primarily by suggestions made in the survey, approximately 50 per cent over what was used in a corresponding period of last year.

An interesting incident happened some time after the survey work had been completed for this concern. One of the telephone company's officials was at a prominent club in this city at which time a number of the club's members were criticizing the telephone company. The president of this electrical company happened to be there when this occurred. His attitude toward the telephone company in contrast with that of the others was so favorable that some of them inquired in a joking way, if he was in the employ of the telephone company.

Of course, the stand taken by the president of the electrical company, could not be traced directly to the survey, but it is believed that his position was influenced to an extent by the work already done in his plant and offices by the commercial service bureau.

Recently a survey was made at Syracuse for one of the larger department store corporations which operate stores at Syracuse, Rochester and Buffalo. The head of this corporation had made considerable adverse criticism of the telephone company at the time of one of our rate increases. At that time he had established a rule in his store that no toll service could be used by his department managers unless his personal approval was first obtained.

The survey developed that the store was losing business through the inefficient handling of telephone inquiries and through lack of sufficient facilities in certain departments to care for telephone sales. It was also brought out that on account of the improper location of some 16 stations, the general public was making excessive use and abuse of this service and that the public telephones that had been installed by the telephone company for this traffic were not being used on this account.

All of the recommendations outlined in the survey were carried out by the subscriber. They involved, among other things, the removing of the 16 stations

A CHANGING PERIOD.

This is a day of rapid change in the lives of the American people. Within a few years revolutionary things have happened in our religion and social attitudes. They are happening even more vigorously in our economic laws.

Yesterday was the day of the Warrior. Today is the day of the Capitalist. Tomorrow will be the day of the Thinker.—D. W. Griffith.

to points where they could not be used by the public and the relocation of the public telephones where they were more readily available for the public's use.

The original order that had been issued that toll service had to have the approval of the president was countermanded and a store "shopper" was established to care for incoming telephone inquiries. The store shopper in her spare time is to reach out in the surrounding suburban villages by telephone in an endeavor to secure more business.

The management of this concern stated, after the findings of the survey had been presented and inaugurated, that they had obtained, without expense to them, a service that would have cost at least $300 if they had been compelled to hire a merchandising engineer to point out certain difficulties in the handling of their telephone work. A request was made at that time by the management of this department store company that similar surveys be made at their stores in Rochester and Buffalo. The results of this survey from a public relation standpoint are obvious.

I would like to give you a brief sketch of one more case, which deals with an entirely different type of business than has already been outlined. A request was received in the early part of January from a large steel concern with its executive offices and plant located in Syracuse and its sales offices in New York City, relative to securing assistance in solving some difficulty that it had been experiencing in connection with communicating by telephone between the two points. From investigation it developed that the trouble seemed to lie within the organization of the steel company as it was found that our traffic department was handling this company's traffic, both local and long distance, in an efficient manner.

It developed that calls between this concern's Syracuse and New York City offices were oftentimes duplicated; that is, a call would be filed by an official in the Syracuse plant for an official in the New York City office at about the same time a similar call was placed from the New York City office for the Syracuse representative, both calls oftentimes being completed before it was known that one of the calls duplicated the other.

It was pointed out to this subscriber that this difficulty could be overcome by the grouping of calls between Syracuse and New York and by handling them on a "dispatching" service. Furthermore, that this method would allow the majority of the calls to be handled upon a station-to-station basis. The general manager of this steel company readily grasped the idea and requested that the commercial service bureau's representative remain in his office while he dictated a letter to this company's New York office outlining the scheme and authorizing its inauguration, in order that the service bureau's man could suggest any points that might be overlooked.

The plan actually adopted by the steel company was for each official or employe at the Syracuse and New York offices to register their calls with their respective private branch exchange operator every morning as soon as it was found necessary to talk with the distant office. The private exchange operator would take the name of the party requesting the call and the name of the party he desired to reach. Each request was listed in the sequence in which it was received by the branch exchange operator.

About 10 o'clock each morning the private branch exchange operator of the Syracuse office would place a station-to-station call for the New York office and, after the connection had been established, the different calls placed with her were completed over the one connection; also any calls listed at the New York City office with its private branch exchange operator, that were not duplicated on the Syracuse operator's list, were completed at this time over this same connection. A similar procedure was followed again in the afternoon if conditions warranted. A recent analysis of this company's toll service for one month indicated that it had used over 18 hours of circuit time to New York.

At the time this subscriber was interviewed, its toll usage averaged $270 a month. Its toll usage since this plan was inaugurated is as follows:

February	$ 350
March	495
April	540
May	700
June	1,275
July	770
August	811
September	1,041

Now, you may believe that commercial service bureau work can be applied with success in the larger cities and communities but that in the smaller towns of your respective territories, it would not be feasible. In this connection, I wish to call your attention to the produce business. Toll stimulation can be applied, and it will not only produce gratifying results to the toll user but also increased toll revenues to a considerable magnitude for you. Furthermore, I dare say there are one or more produce dealers located in the territory of most every company represented here today. Is there any reason why your companies should not obtain their share of this potential toll business that is merely waiting for you to develop it?

There are many cases that may be producers of toll revenues. For example, I believe it would be possible, Mr. Wilcox, for the West Winfield Telephone Co. to interest the Hiteman Leather Co. in stimulating its business by the judicial use of toll service, especially, if you could show it that by using toll service in marketing its products it would reduce its distribution cost anywhere from 50 to 75 per cent.

You have, Mr. Seeley, at Norwich the Maydole Hammer Co. and the Norwich Pharmical Co. that no doubt could be interested in this method of merchandising. If either one of these corporations realized that the use of toll service at certain times would help to solve some of their distribution problems, it should not be difficult to interest them in this service.

There is a branch of a large road machinery manufacturing company located at Marathon with its home office at Kennett Square, Pa. There must be continuous occasions when it is necessary for this concern to communicate between the branch and the main plant. It would seem, Mr. Carter, that you could present them with a scheme somewhat similar to the plan being used by the steel company as outlined previously in this paper which would bring additional toll revenues to the Killawog Telephone Co.

The Oswego County Independent Telephone Co., Mr. Sheahan, has an exceptional opportunity to apply this work. I recall only a few of the many industries that you have in your territory; such as, the Arrowheads Mills, Inc., manufacturers of paper; McHenry-Milhouse Manufacturing Co., asphalt roofers; Massaro Macaroni Co., macaroni manufacturers; Nestle Food Company., malted milk and milk products; Sealright Paper Container Co., makers of milk bottle caps and paper receptacles; and also a great many market gardners who are compelled to seek their markets in New York, Philadelphia, Pittsburgh and other of the larger distant cities.

Mr. Smith of the Vernon Telephone Co. has two industries that it would seem could be approached in connection with telephone selling. The first is the Uebler Milking Machine Co. and the second is the Dairymen' League Condensary.

No hard and fast rule can be laid down as to just what plan or scheme of telephone selling should be presented to any concern as no two commercial companies are exactly alike, nor are their sales problems or the sales resistance experienced by each the same. For these reasons it is necessary to obtain some insight into their respective organizations in order to be able to suggest a telephone scheme that would be applicable.

WORK HARD.

Work hard and work conscientiously. There is no achievement in life that is possible without work. When work goes out of style we may expect to see civilization totter and fall.—John D. Rockefeller, Jr.

Conferences and State Conventions

West Texas Telephone Co. Holds Fine Two-Day Chief Operators' Conference at Brownwood—Fifteen Independent Exchanges at Meeting—Excellent Programs for Meeting of Iowa Independent Association and Chief Operators' Conference

Fine Chief Operators' Conference at Brownwood, Texas.

West Texas Telephone Co. called a chief operators' meeting to be held in Brownwood on April 4 and 5, 1923. After thoroughly considering the matter, it was decided to invite all the connecting line companies operating exchanges surrounding West Texas Telephone Co. The result of this invitation was that there were representatives at this meeting from the Gulf States Telephone Co., San Angelo Telephone Co., Comanche Telephone Co., Southwestern Bell Telephone Co., Santa Anna Telephone Co., and Shields Telephone Co. On account of a fire at Cross Plains the Home Telephone & Electric Co. was unable to have representatives attend this meeting. The register showed that 21 exchanges were represented, 15 of which were Independent exchanges and six Southwestern Bell Telephone Co. The territory represented covered 18 counties with a population of approximately 340,000 people.

The entire morning of April 4 was spent in the telephone building in a general get-acquainted meeting. The net result was that each young lady attending the conference became very much attached to the other and this is bound to result in a closer coöperation in the handling of business in the future.

The first business session was called to order at the Southern Hotel at 2 p. m. by D. J. Johnson, general superintendent single-ticket method, the establishment of different classes of service, the application of report charges and the over-lapping ringing method, all of which would be discussed at the proper time.

F. W. Greber, general manager of West Texas Telephone Co, extended a cordial welcome to the visitors and explained the purpose of the meeting. P. A. Glanville, president of the Brownwood Chamber of Commerce, cordially welcomed the visitors in behalf of the Chamber of Commerce and the citizens of Brownwood. Following Mr. Glanville's address the chairman introduced G. N. Harrison, president of the West Texas Telephone Co., who announced that several radical changes have been made in the operating practice and methods in the last three years, such as the establishment of toll centers, the West Texas Telephone Co., who gave a short history of West Texas Telephone Co. and spoke on the subject of "Service and Coöperation" These talks were very much appreciated by all.

The following subjects were then taken up and discussed in detail:

"Duties of Chief Operators and Their Assistants," led by Mrs. J. N. Hopper, Gatesville, and Miss Norma Ford, Brownwood.

(a) Treatment accorded the public in small offices.

(b) The proper coöperation of chief operators and wire chiefs in testing and locating switchboard trouble, first and lasting impression left with the public.

(b) The necessity of accurately recording the proper information on toll tickets and the reasons for furnishing the calling party with the proper information on the different classes of service furnished.

(c) Why the recording operator should pass all tickets to the proper outward operator.

"Duties of Inward Operators," led by Miss Ila Wells, Hamilton, and Miss Della Harris, San Angelo. This discussion took up in detail the duties of the inward operator in assisting the incoming operator in completing or getting the necessary information before the incoming operator releases the circuit.

The West Texas Telephone Company Recently Sponsored a Most Interesting Operators' Conference Held at Brownwood.

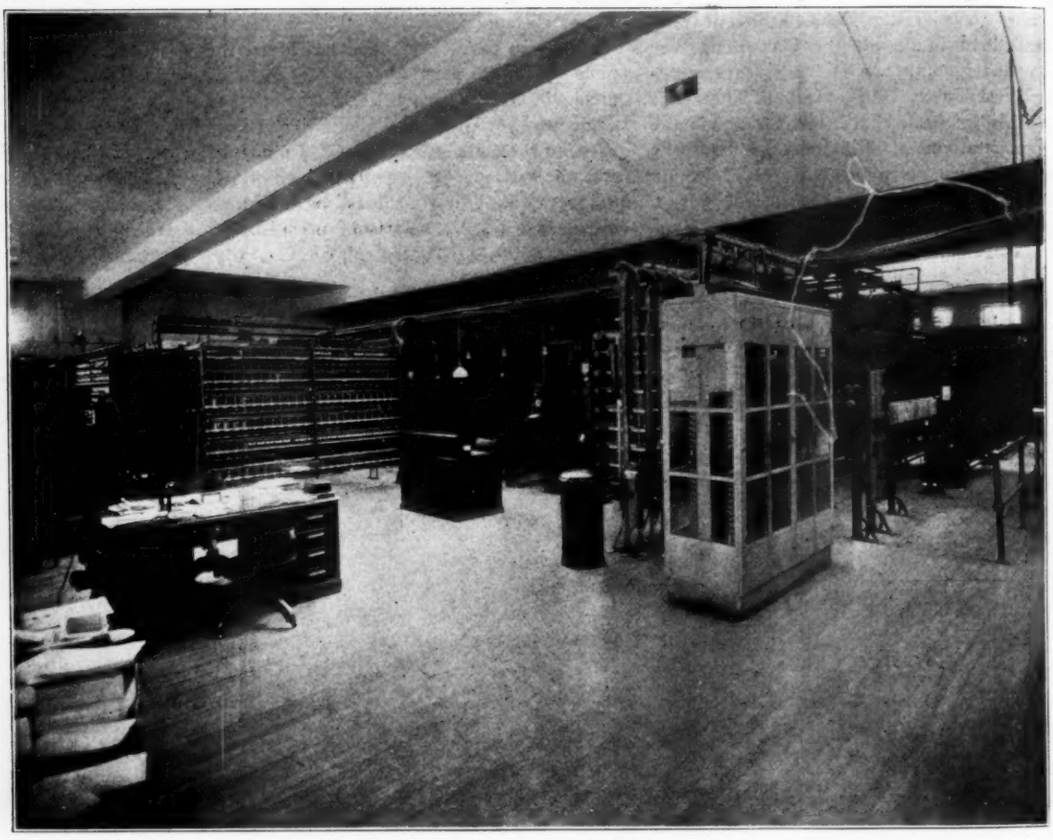
"Duties of Through Operators," led by Miss Hattie Vorbeck, Ballinger, and Mrs. Lena Nabors, Lampasas. This discussion took up in detail the duties of the through or switching operators in assisting in the completion of all through connections.

"Duties of Outward Operators," led by Miss Ruby Garrett, Coleman, and Miss Nan Harris, Sweetwater.

(a) The outward operator should prop- and their responsibility in handling switchboard equipment by the operators.

(c) Selection, training and treatment of all employes under the supervision of the chief operator.

"Duties of Recording Operators," led by Miss Mary Withers, Comanche, and Mrs. J. M. Bates, Winters.



The Strowger equipment in the main exchange at Columbus, Ohio, has remained practically unchanged from the time it was installed in 1905. The cabinet in the foreground contains the only new equipment in the switchroom. The service is still good and maintenance simple and easy.

What Is the Life of Strowger Automatic Equipment?

A frequent and very natural question to be asked by the prospective purchaser of Strowger equipment,—but frankly, we don't know the answer.

We can only point to the many exchanges that have been and are still operating with Strowger equipment successfully and economically in all parts of the country—for periods varying from fifteen to twenty years. To mention but a few: St. Mary's and Dayton, in Ohio; Sioux City and Manchester, in Iowa; Lincoln, Nebraska; Wausau, Wisconsin; Grand Rapids, Michigan; Richmond, Indiana; Allentown, Pa.

Add to these records the years of experience gained in operating and maintaining the equipment, the better materials and improved manufacturing methods now available; and the physical life of Strowger switches lengthens indefinitely.

When considering the purchase of new central office equipment, compare the average length of life of the typical manual switchboard with that of Strowger equipment.

Automatic Electric Company

FACTORY AND GENERAL OFFICES: CHICAGO, ILLINOIS

BRANCH OFFICES IN ALL PRINCIPAL CITIES

ASSOCIATED COMPANIES

INTERNATIONAL TELEPHONE SALES AND ENGINEERING CORPORATION, New York

International Automatic Telephone Company, Ltd., London — Compagnie Francaise pour l'Exploitation des Procédés Thomson-Houston, Paris

Automatic Telephone Mfg. Co., Ltd., Liverpool — Automatic Telephones, Australasia, Ltd., Sydney

(a) The attitude of the recorder in the erly inform herself with reference to the directions of the ticket and route before starting to build up a circuit to the called station.
(b) The necessity of properly passing the ticket to the called station and reaching the called party or station.
(c) Properly announcing the call to the distant operator and called party or called station and securing complete information from the distant operator or called party or station.
(d) Timing, supervising, disconnecting and clearing toll circuits.
(e) Chargeable reports.

"General Discussion." Under this heading came all matters of a general character with reference to operating problems and the necessity of applying standard operating methods.

"Local Operating Practice and Methods," led by Miss Pauline Maday, San Angelo, and Miss Tot Wood, Hico. Under this heading was discussed the matter of properly furnishing local telephone service, the necessity of a standard practice of ringing called stations and the watching of disconnect signals.

Each leader showed much interest in the subject assigned and handled her subject in a very capable manner.

Among the social features of the meeting was an invitation by West Texas Telephone Co. to all visitors to be its guests at the concert given by the St. Louis Symphony Orchestra on Wednesday evening, after which the party was entertained by H. R. Barlow, proprietor of the Southern Hotel dining room, with refreshments and a delightful social hour.

The visitors were entertained by West Texas Telephone Co. at the Southern Hotel with a banquet Thursday at noon and refreshments were furnished by the Alamo Mfg. Co. immediately after adjournment Thursday afternoon.

Iowa Association Has a Good Program for Its Convention.

That the convention of the Iowa Independent Telephone Association next week will be a big success is evidenced by the widespread interest which is being taken in it.

The manufacturers' exhibits promise to be better than usual, and there are so many that every inch of space available is being taxed to the limit.

Secretary Chas. C. Deering, of the association, announces that the Western Passenger Association has granted rates on the certificate plan, conditioned on the presentation of 250 certificates and applying to Iowa points. Everyone who goes to the convention should take advantage of this by procuring a certificate when he purchases his ticket to Des Moines.

The program for the meeting, which will be held at the Fort Des Moines Hotel, has this alluring prospectus:

TUESDAY AFTERNOON, APRIL 24.

President's annual address, J. M. Plaister, Fort Dodge.
Secretary-treasurer's report, Chas. C. Deering.
Legislative report.
Appointment of committees.

WEDNESDAY, APRIL 25, 10 A. M.

"Maintaining Telephone Cable," by M. T. Caster, Lincoln, Neb., plant superintendent, Lincoln Telephone & Telegraph Co.
"Industrial Iowa," by R. H. Holbrook, engineering extension department, Iowa State College, Ames.

WEDNESDAY, 2 P. M.

"Two Groups in the Industry," by F. B. MacKinnon, Chicago, president, United States Independent Telephone Association.
"Fundamentals of Americanism," by M. B. Pitt, Des Moines, former state senator.
"Managers' Problems," by P. M. Ferguson, Mankato, Minn.
Election of officers.
Committee reports.
Revision of constitution.
New business.

WEDNESDAY, 6:30 P. M.

Banquet—Entertainment features, dancing, initiation into Independent Pioneers' Association.

THURSDAY, 10 A. M.

"The Northwest Iowa Association, Its Work and Its Accomplishments," by W. H. Daubendiek, West Bend.
Round table conference:
Collection methods.
Underground cable.
High line interference.
Accounting practices.
Depreciation.
An opportunity for discussion of any problem managers want to raise.

THURSDAY, 2 P. M.

Continuation of round table conference.
Question box.

The chief operators, too, have several things to talk over regarding the service furnished their patrons and the advancement of their companies' interests. Their sessions will be held on the last two days of the convention and will include:

WEDNESDAY, APRIL 25, 9 A. M.

Address of welcome, by J. M. Plaister, president, Iowa Independent Telephone Association.
"Qualifications Necessary in the Selection of Operators," by Miss Julia Dwyer, supervisor of employment, Des Moines.
"Industrial Iowa," by R. H. Holbrook, engineering extension department, Iowa State College, Ames.

WEDNESDAY, 2 P. M.

"The Patron, The Operator, The Company," by Miss Fay Johnston, chief operator, Marion County Electric Co., Pleasantville.
"Correct Ticket Detail and the Effect It Has on the Commercial Department," by Mrs. Gladys Pierce, Marion County Electric Co., Knoxville.
"Operator Problems," by Miss Nelle Roberts, Central Mutual Telephone Co., Rockwell City.
Opening the question box, Miss Marie Hanny, district instructor, Des Moines.

THURSDAY, APRIL 26, 9 A. M.

"Coöperation," by C. C. Deering, secretary, Iowa Independent Telephone Association.
"Classified Toll Calls and Report Charge Interpretation," by Miss Bess Peterson, chief operator, Marshall Telephone Co., Marshalltown.
"Value of System in Operating," by Miss Grace Coan, chief operator, Crawford County Telephone Co., Denison.
"Peg Counts and Schedules," by H. G. Sandy, Northwestern Bell Telephone Co., Des Moines.

THURSDAY, 2 P. M.

"Public Relations," by Robert L. Parker, manager, Traer Mutual Telephone Co., Traer.
"Routing and Its Relation to Service," by Mrs. Lena Jones, chief operator, long distance, Des Moines.
"A Good Hand to Hold," by Stanley R. Edwards, editor, TELEPHONY.
Opening the question box, Miss Marie Hanny.

A. T. & T. Co. Now a Billion-Dollar Corporation.

The American Telephone & Telegraph Co. stepped into the front rank as America's greatest corporation in point of size, and possibly the largest in the world, when stockholders at a special meeting on March 27 ratified the proposal of the company's directors calling for an increase in authorized capital stock from $750,000,000 to $1,000,000,000.

The corporations nearest in size are the United States Steel Corp. and the Standard Oil Co. of New Jersey. The General Motors Corp. has also been mentioned as one of the near-billion-dollar concerns, but in view of the fact that only a small percentage of its authorized capital stock of $1,347,500,000—based on the current price of General Motors common stock—has been actually issued, it is generally rated as below both American Telephone & Telegraph and the United States Steel Corp. in point of actual size.

According to President H. B. Thayer, the company will not make any new offering of stock during 1923, in which case the outstanding total of the United States Steel Corp. will continue for at least another year ahead of the actual outstanding stock of the telephone corporation.

Through the action on March 27, the American Telephone & Telegraph Co. has doubled its capital structure since March, 1920, when the authorized capital was increased from $500,000,000 to $750,000,000. The purpose was to have available an instrumentality for the raising of funds without increasing bonded indebtedness of the company, and through means of which the company has been able to show steady expansion.

Prices in the Metal Markets.

New York, April 17.—Copper—Steady; electrolytic, spot and futures, 17@17¼c. Tin—easier; spot and futures, $45.50. Iron—steady; No. 1 northern, $31.00@32.00; No. 2 northern, $30.00@31.00; No. 2 southern, $27.00@28.00. Lead—steady; spot, $8.20@8.25. Zinc—easy; East St. Louis, spot and nearby delivery, 7.35@7.42c. Antimony—spot, 8.37c.

THE ROAD IS STEEP AND DIFFICULT BUT PUSH ON THE GOAL IS AHEAD
CONSTANTLY IMPROVED SERVICE
COME ON BOYS
PROFITS
MGR
OFFICE FORCE
STATE LEGISLATURES
FREAK BILLS COMPELLING TEL CO TO TELL THE TIME
ACT AS ALARM CLOCK ETC
A BLOW ON THE HEAD
TELEPHONE SERVICE
THREATENING HER
JUSTICE
STATE UTILITIES COMMISSIONS
FOR TELEPHONY
RADICALISM
DONT WORRY ABOUT RADIO YOU WILL LAST AS LONG AS I HAVE
THIS IS BECOMING STALE AND UNTRUE
NEWSPAPER
PRESS HUMORISTS COLUMN
KNOCKING THE TELEPHONE
PUBLIC
YES
THE PUBLIC
TELEPHONE
IF SHE COULD SPEAK

Financial Reports and Activities

Balance Sheet of Southwestern Bell Compiled so as to Show What Each Account Covers, Operating Economies Due to Increased Efficiency — Grand Rapids, Mich., Company Shows Good Progress—C. & P. Increases Capital Stock

Southwestern Bell Compiles Annual Report in New Manner.

A review of the financial operations of the Southwestern Bell Telephone Co. for the year ended December 31, 1922, shows that considerable progress was made during last year along constructive lines.

The company operates 673,202 exchange telephones in Missouri, Kansas, Oklahoma, Texas and Arkansas, and the territory is constantly growing, bringing an increased demand for service. Last year $11,759,699 were spent for plant extensions, and the program for 1923 will require the expenditure of approximately $13,700,000. During 1922 42,930 stations were added, and the estimated gain for 1923 is 45,000.

In a letter to the stockholders, President E. D. Nims stated that the quality of exchange and toll service in the territory served by the Southwestern Bell steadily improved during 1922, and that the efficiency of the operating force is continuously increasing.

President Nims referred to the plan of offering the company's cumulative preferred stock to its customers, declaring that it had proved eminently successful. During the year a further issue of $17,500,000 of the 7 per cent cumulative preferred was approved in addition to that already authorized.

None of the stock was offered outside of the territory served by the company, and only a small amount is held elsewhere than in those states.

Accompanying the report was a map which showed the location of the 864 cities and towns where the stockholders reside. This was intended to bring out forcibly the wide distribution and interest of the customers in their company.

The report mentions the purchase of the Kinloch system—the contract for which was made February 21, 1922—and states that approval of this contract has been given by the state regulatory bodies of Missouri and Illinois and recently the Interstate Commerce Commission.

Work on unification of this plant with the Bell system has begun and should be completed in 18 months.

The stockholders of the Kinloch company have elected to take Southwestern Bell 7 per cent cumulative preferred stock for their holdings.

During 1922 mechanical switchboards were introduced at Austin, Texas; Oklahoma City, Okla.; St. Joseph, Mo.; Little Rock, Ark., and Topeka, Kans.

Through the opening of these exchanges the company increased its machine switching stations during the year by 33,127, so that at the present time a little more than 5 per cent of its total stations are served from mechanical switchboards.

The employes come in for their share of honorable mention.

"Economies in operation," declares Mr. Nims, "were effected during the year, and were largely due to the increased interest and earnest coöperation that we have had from our employes."

During the year 1922 there were 732 employe accident cases on which payments were made, this being 175 less than in 1921. There were 1,927 sickness cases in which payments were made, an increase of 565, which is largely accounted for by the epidemic of dengue fever in Texas. There were 22 death payments made, of which 4 were caused by accidents and 18 by sickness.

At the end of 1922 there were 30 employes on the pension roll who had seen 30 years' service or more in the Bell system.

A summary of the statistics as of December 31, 1922, follows:

Exchanges	650
Subscribers' stations	673,202
Connecting stations	1,041,317
Total stations	1,714,519
Miles of exchange and toll wire.	2,124,264
Underground wire, mileage	892,980
Miles of toll wire	321,766
Miles of toll wire, connecting	74,919
Average number of exchange messages daily	4,815,946
Number of outward toll messages for year	33,682,585
Total pay roll for year 1922	$18,145,620
Average number of employes during year	18,293

A departure was taken from the usual manner of making out a balance sheet and presenting financial data to the stockholders.

In order that the figures might mean something to the stockholder who is unfamiliar with accounting methods and terms, the balance sheet and income statement were so compiled that the reader can easily comprehend what is covered by each account.

The statements, prepared in this fashion, carry to the stockholder a real message of what the company is doing and will enable them to visualize what is back of the balance sheet and income statement.

The descriptive balance sheet follows:

ASSETS.

Land and buildings. (Represents actual investment in real estate for telephone purposes. There are 155 buildings, principally in larger cities.)	$ 8,536,847
Telephone plant. (Represents actual expenditures for facilities for furnishing service, principally poles, wire, cable, underground conduits, central offices and subscribers' station equipment for both exchange and toll service.)	104,779,654
General equipment. (Represents cost of office furniture and fixtures, machinery, etc., in repair shops, store equipment, automobiles, tools and implements.)	1,763,117
Investment securities. (Represents cost of stocks, bonds and notes of other telephone companies affiliated with our system, in which we own a large or controlling interest.)	26,597,340
Advances to system corporations (Represents funds advanced to affiliated, controlled and subsidiary telephone corporations for construction, equipment and betterments.)	10,564,577
Miscellaneous investments. (Represents real estate, formerly held for telephone purposes, now held for sale.)	223
Cash and deposits. (Represents cash working capital on hand and in banks and includes $611,767.01 deposited under court order, awaiting settlement of litigation, pending.)	1,929,678
Bills receivable. (Represents collectible obligations in the form of notes payable on demand or within one year.)	393,145
Accounts receivable. (Represents accounts due from subscribers and others of a current nature.)	7,093,018
Materials and supplies. (Represents investment in telephone supplies held for use in giving service.)	1,006,807
Marketable securities. (Investment of a miscellaneous nature not now necessary, and held for sale.)	31,103
Accrued income not due. (Represents unmatured interest, dividends and rents receivable accrued in our accounts monthly, but not payable until some future day.)	411,101
Sinking fund assets. (Represents cash and securities deposited with trustees under provisions of trust indentures.)	19,246
Prepayments. (Represents rents, insurance, cost of printing directories and other expenses paid in advance.)	171,699
Unamortized debt discount and expense. (Represents remaining amount of discount and expense in connection with issue of $25,000,000 five-year convertible gold notes sold April 1, 1920.)	754,754
Other deferred debit items. (Represents small miscellaneous items, some of which are temporarily in suspense.)	94,810
Total assets	$164,147,119

The Most Precious Realization.

Men, including our richest men, are coming more and more to realize that the most precious, the most worthwhile riches of all are not bank deposits, but the deposits of affection and friendliness and esteem laid up by them in the hearts of their brother men.—B. C. Forbes.

LIABILITIES.

Common stock (Represents, dollar for dollar, the money invested by common stock holders. There has never been a share of the company's stock sold for less than par.)	$ 75,000,000
Preferred stock (cumulative) (Represents cash paid at par by preferred stockholders who receive 7 per cent per annum in dividends before any dividends can be paid on common stock.)	10,212,000
Funded debt (Represents principally our $25,000,000 five-year convertible gold notes called for redemption, April 1, 1923.)	26,034,700
Advances from system corporations (Represents cash loaned to us by the American Telephone & Telegraph Co. for construction, equipment and betterments.)	16,274,761
Bills payable (Represents bills payable on demand or within a time not exceeding one year.)	7,500
Accounts payable (Represents current accounts of miscellaneous nature most of which are paid the following month.)	1,461,037
Accrued liabilities not due (Represents liabilities, estimated if not known, such as taxes, interest, rents, etc., for which bills have not been received, principally taxes, amounting in this instance, to over $2,000,000.)	3,689,193
Insurance and casualty reserves (Represents amount set aside to assume a part of risks on account of fire and automobile casualty.)	186,064
Liability for employes' benefit fund (Represents appropriation for employes' benefit fund, to provide pensions, accident and sickness disability benefits, death benefits and disability expenses.)	859,500
Other deferred credit items (Represents deferred credit items of a miscellaneous nature.)	801
Reserve for accrued depreciation (Represents reserve to cover expenses of depreciation currently accruing in telephone plant and other property. This amount provides for the losses in property through rot, rust and decay, storms, floods and fires, and losses due to property becoming obsolete or inadequate resulting from age, new inventions and discoveries. The greater part of this fund is invested in telephone plant and this reduces the cost of our service to the public as we do not pay interest or dividends on this money.)	25,245,820
Reserve for amortization of intangible capital (Represents reserve set up to care for losses incident to abandonment of rights-of-way for the company's lines.)	81,921
Appropriated surplus (Represents amount to meet our obligations should certain pending litigation be decided against the company. When court decisions in favor of the company are received, this amount will be returned to the unappropriated corporate surplus account.)	862,987
Corporate surplus unappropriated (Represents surplus unappropriated since the company began business. It is approximately the difference between net income and dividends that have been declared. The amount represented herein is invested in property.)	4,230,835
Total liabilities	$164,147,119

Below is the descriptive income statement:

Telephone operating revenue (Represents revenues from exchange and toll service, advertising in telephone directories and other miscellaneous telephone operations.)	$ 37,952,765
Telephone operating expenses (Represents principally operators' wages; cost of repairs and depreciation, billing and collecting subscribers' accounts, issuing directories and other miscellaneous expense.)	25,089,236
Net telephone operating revenues	$ 12,863,529
Uncollectible operating revenues (Represents revenues earned but not collectible.)	291,526
Taxes assignable to operations (Represents federal, state and local taxes assessed for 1922.)	3,283,560
Operating income	9,288,443
Net non-operating revenues (Represents principally interest and dividends from stocks, bonds and notes of connecting telephone companies in our territory.)	2,062,725
Total gross income	11,351,168
Rents and miscellaneous deductions (Represents principally rents paid in places where company does not own quarters.)	714,432
Interest deductions—bonds and convertible notes (Represents interest on funded debt, principally the five-year 7 per cent convertible gold notes called for redemption April 1, 1923.)	1,799,599
Other interest deductions (Represents principally interest on advances from the American Telephone & Telegraph Co. for construction, equipment and betterments.)	1,818,471
Balance net income	7,018,666
Appropriations of net income for sinking and other reserve funds (Represents amount of operating revenues set aside pending final court decisions.)	335,877
Appropriations or net income for dividends (Represents payments to owners of outstanding preferred and common stock from net income.)	5,636,167
Appropriation of net income for employes' benefit fund reserve. (Represents amount appropriated to increase the reserve for payment to employes and their beneficiaries of accident and sickness disability benefits, pensions and death benefits, in accord with the employes' benefit plan.)	400,000
Balance for corporate surplus (Represents undivided profits transferred to corporate surplus.)	646,622

Grand Rapids, Mich., Company Earned $1,600,000 Last Year.

The stockholders of the Citizens Telephone Co., of Grand Rapids, Mich., had their final annual meeting on March 27. President Robert D. Graham, in opening the meeting, said that the approval of the Michigan Public Utilities Commission to the purchase of the Citizens company by the Michigan State company was expected any day.

The financial statement showed the operating earnings for the year to have been $1,597,614, an increase of $93,509 over the earnings for 1921; operating expenses $805,150, a decrease of $31,574; and depreciation $302,385, leaving $490,070 as the net operating revenue.

After taxes, interest and other deductions were made a balance of $252,128 remained, from which $231,104 was paid in dividends and $21,024 carried to surplus.

The balance sheet shows total assets of $6,541,481, an increase of $219,761. The plant is listed at $5,421,415; investments in subsidiary companies, $837,319; construction work in progress, $87,119; and cash, $23,253.

The liabilities include $3,851,735 stock, $1,453,800 bonds, $248,504 bills payable, reserves $463,574, and surplus $370,345.

The company had a net gain of 2,174 subscribers during the year, the largest gain for a single year on record, and the total now is 21,980.

The extension and improvement work of the year includes 20,280 feet of aerial cable and 34,197 feet of underground cable.

There are 2,882 stockholders in the company, of whom 1,267 live in Grand Rapids, 967 in Michigan outside of Grand Rapids and 648 in 40 different states and five foreign countries. The average holding is less than $1,350, and only six holdings are more than $20,000 each.

C. & P. Company Increases Capital Stock to 12 Millions.

The Chesapeake & Potomac Telephone Co., of West Virginia, filed a certificate with the secretary of state on March 20, increasing its capital stock from $7,500,000 to $12,000,000. This increase was authorized at meetings of the board of directors and stockholders, held in New York March 16.

In connection with the increase in the authorized stock of the company, W. T. Williamson, vice-president, stated that of the present authorized capital only $6,825,400 had been issued and that $10,500,000 of the $12,000,000 just authorized would be issued and will be used to take up advances from the system corporations, amounting to nearly $4,000,000, all of which has been used for the construction of new plants in the various sections of West Virginia during the last four or five years.

The Chesapeake & Potomac Telephone Co. of West Virginia was organized on January 1, 1917, to take over the Bell properties in West Virginia.

Since then there has been a continued increase, there being 52,599 stations on January 1, 1918, and 77,335 on March 1, 1923, in addition to which, the company has connection with nearly 35,000 telephones owned and operated by Independent companies in different sections of the state.

Extensive additions to plants are being made over the state, consisting of cable, additional central office equipment, toll circuits, and the opening of three or four new exchanges. During this year over $1,500,000 of new money will be put into the plant in West Virginia.

Exchange at Bellflower, Ill., Burns to the Ground.

Fire originating from a defective flue in the telephone exchange at Bellflower, Ill., on March 31, burned that building and several adjacent buildings to the ground, the loss being estimated at about $20,000. The buildings were all frame buildings and burned rapidly.

As a result, the town was without telephone service for several days.

SPECIAL TRANSPORTATION EQUIPMENT.

(*Concluded from page* 19.)

This was an adaptation of one of the best hoisting winches then available, and some ingenious controls were developed at the time in order to facilitate, or in fact, even permit of, its operation on the trucks.

While this unit was a wonderful labor-saving device and opened up the possibilities of the broad field of usefulness for truck operated winches, its size and weight were such that it could not well be used on trucks of less than five-tons capacity. It will be noted that the winch extends well up to the cab window and would practically fill the front end of the body. Its net weight exclusive of the truck power take-off was 2,300 pounds.

The desirability, and in fact the indispensable need, of using winches on the smaller trucks has led to the development of a very compact light weight unit which will handle about 900 feet of 7/16 inch steel rope and withstand a pull of 10,000 pounds on a single line. Experience indicates, that this winch is capable of meeting the maximum requirements generally encountered in construction work.

The compactness of this winch is illustrated by Fig. 18 which shows it below the cab window with only the upper half of the drum projecting above the floor line in order to give the rope proper clearance in winding and unwinding. This winch weighs slightly less than 500 pounds.

In closing this discussion of motor vehicle application to telephone work it might be of interest to examine the curve in Fig. 19, which shows the rate of growth of the motor vehicle fleet in the Bell system.

This curve prepared from such information as now available presents a reasonably accurate picture of the motor vehicle development which began in the Bell system as early as 1904.

As explanatory of this curve it may be noted that previous to 1910 very few cars and no trucks were purchased. From 1910 to 1913 various types of equipment were placed in service largely upon an experimental basis.

The results of these experimental installations were so favorable that from 1913 to 1919 the growth was very rapid due to superseding the large number of horse-drawn trucks with motor vehicles as well as providing additional motor vehicles to keep pace with the growth of the telephone industry. From 1919 to 1922 the slope of the curve indicates a slow, steady growth which corresponds with the growth in requirements of the telephone construction and maintenance organizations in handling their steadily increasing activities.

From the foregoing it will be noted that a period of 40 years has witnessed a striking development in transportation and associated equipment as applied to telephone construction work, and studies now under way indicate that there is yet much to be accomplished.

Commissions, Courts and Councils

Discussion and Rulings of State Bodies Having Supervision Over Telephone Companies—Decisions of Courts in Matters of Interest to Public Utilities and Actions of City Councils Relative to Franchise, Rates and Service

City Officials of Fort Smith, Ark., to Have Half Rates.

The Southwestern Bell Telephone Co. has reduced the rental on the telephones 50 per cent to all city employes of Fort Smith, Ark., effective April 1.

It was announced on March 30 that the company had added facilities for extension of telephones to North Little Rock, and would begin installing instruments at once.

Illinois Company Will Sell Bonds to Cover Storm Repairs.

Permission was given the Winnebago County Telephone Co., of Rockford, by the Illinois Commerce Commission on April 6, to issue and sell $40,000 first mortgage bonds to cover repairs made necessary by damage to lines within the county during the March snow and sleet storms.

The company suffered a severe storm loss during the month and miles of pole lines are still down. Service to county subscribers is being restored rapidly.

The bonds are to net 96 per cent of their face value.

Voids City Ordinance Which Would Tax Telephone Poles.

The Indiana Public Service Commission on April 3 set aside the Decatur city ordinance which would have required the Citizens' Telephone Co., of Decatur, to pay a fee of 25 cents a year for each telephone pole in the city.

The commission said in its order it could find no authority in law for such a tax for the benefit of the whole city at the expense of the telephone patrons. It granted the company's petition to set aside the ordinance on the grounds of unreasonableness and unlawfulness.

Illinois Bell Asks Capital Stock Increase for Expansion.

Application was made April 16 by the Illinois Bell Telephone Co. to the secretary of state and the Illinois Commerce Commission for authority to increase its capital stock $10,000,000.

The telephone company is carrying out an extensive construction program. It plans to spend about $18,000,000 for new construction work in the territory served by it this year. In the next five years it is estimated these expenditures will total more than $100,000,000. All parts of the state are affected by the new construction work.

An idea of the company's efforts to keep pace with the public's demand for telephone service is given in the fact that last year the increase in the number of stations was 56,935 in the territory served by the company.

Michigan Bell Authorized to Pay A. T. & T. in Securities.

The Michigan Public Utilities Commission gave the Michigan State Telephone Co. authority to issue $19,000,000 of stock for the purpose of paying up that amount on about $25,000,000 of outstanding notes. The order was issued April 7.

For years the company has been making its extensions by issuing notes for money loaned it by the American Telephone & Telegraph Co. and the A. T. & T. is now taking the stock in payment for $19,000,000 it has loaned the Michigan State.

In such cases as this the commission realizes one-tenth of one per cent of the amount of the stock involved. In this particular case, $19,000 is realized by the commission.

In Big City Directory and Has Local Directory Also.

The Lincoln Telephone & Telegraph Co. has made its peace with the business men of University Place, Neb., who entered a protest to the state railway commission against the threatened loss of that city's identity through a merger of the plant with that or northeast Lincoln. The company proposed to take the University Place subscribers and scatter their names alphabetically in the big Lincoln list, as the University Place exchange is to be made a branch office of the Lincoln office.

The business men wanted a special group listing of all University Place subscribers inserted in the big directory, but this entailed a large expense, as this directory costs $35 a page to print and distribute.

The matter was finally arranged by listing all University Place subscribers in the Lincoln list and providing a special direc-

COOK

Are You Looking For Profit Making Equipment?

Cook Pole Cable Terminals is the Answer to one of Your Problems.

We Will Be Glad To
Qualify This Statement

Cook Electric Company

900 W. Van Buren St. CHICAGO

Please tell the Advertiser you saw his Advertisement in TELEPHONY.

tory for the use of the people in that suburb. The business men agreed to take enough advertising in it to pay the expense, after the company had waived this and offered to fill the special directory with Lincoln advertisers.

Nebraska Commission Appropriation Bill in Danger.

The effort of Governor Bryan to hamstring the Nebraska State Railway Commission by refusing to include in his budget a sufficient sum to enable that body to continue its present force of accountants and rate men will probably be successful.

When the general maintenance bill was before the house, the commission found enough Democratic friends to get the necessary votes to restore a large part of the left out appropriation, but when it came on third reading, to vote on the bill as a whole, the governor mustered practically the full Democratic strength in opposition. The total cast for the bill was but 54, and the speaker ruling that as the constitution requires a three-fifths vote, or 60, to override the governor's budget, the entire bill was lost.

This forced the Republicans to substitute another bill, with the commission and other raised appropriations, omitted. This has passed the house and is now in the senate. That body is expected to restore the appropriation, and the one hope the commission now has is that by the time the house and senate try to reach an agreement, the Democratic friends of the commission will be free to support conference committee reports favoring the increase.

The commission just now is made the victim of partisan politics. The governor is trying to have the Republican legislature adopt a reorganization of the civil administration portion of the state government, which gives him complete power of appointment and removal, and the Republicans have turned this down for plans of their own.

In the hope of forcing them to accept his code plan, the governor was able to mass the entire Democratic strength in the house against the maintenance appropriation bill as a whole, and this was the reason why the Democrats who had voted in committee of the whole to give the commission an adequate fund voted against the bill as a whole on third reading.

Newark, Ohio, Company Accepts Rates Allowed by City.

The Newark Telephone Co., of Newark, Ohio, has filed its acceptance of the increased rate ordinance passed by the city council March 5.

Petitions were circulated recently asking for a referendum vote on the rates but city officials reported that no such petition was filed with the city within the 30-day period and that the proposal to submit the matter to a vote of the people was abandoned.

The city's lawyers united in a published statement approving the action of the city council in fixing the new rates, which range from $1.75 to $6 a month, according to the character of the service.

Cincinnati Bell Submits Schedule Making Zoning Optional.

Taking advantage of the order of the Ohio Supreme Court, which ruled that the Ohio Public Utilities Commission could not restore old rates without a hearing, the Cincinnati & Suburban Bell Telephone Co., on April 5 filed another proposal with the commission for new rates in the city and environs.

The proposal follows the schedule which the supreme court threw out after it had been approved by the commission. The zoning system would be retained, but instead of being made mandatory it would be optional to subscribers to say whether they would take a low rate and pay tolls for service outside their zones or pay a higher rate and have a universal service throughout the county.

It seems likely that the schedule will go through this time, as an agreement approving it has been made by City Solicitor Saul Zielonka and Alfred Bettman, representing suburban patrons of the company, with Joseph W. Heintzman, attorney for the company.

Higher Rates Allowed for Garretson, S. D., Company.

A schedule of rates somewhat higher than the old ones, but considerably lower than those requested, was approved by the South Dakota Railroad Commissioners on April 4, for the Garretson Coöperative Telephone Co., of Garretson. It is effective as of April 1.

The company furnishes service for the town of Garretson, operates one rural party line out of the exchange, and performs switching service for a number of Independent farm lines radiating out from Garretson. The stock of the company is practically all owned by persons who are subscribers on these Independent lines.

During the past year the company has undertaken to replace the aerial plant with underground cable and has made considerable progress on the work. The switchboard now in use is inadequate and it was brought out at the hearing that the management contemplates the installation of a new and larger board.

The commission placed a value of $7,000 on the company's plant, for the purpose of rate-making, and found its income for 1922 to have been $4,466. The expenses for this year were estimated at $4,933—including a 7 per cent return on the valuation. The requested rates would have brought an income of $5,624.

There was some complaint as to the inadequacy of the company's night service, but as the estimated expenses provided for three operators, the commission believed this service could be improved.

The commission found fault with the company for unlawfully having as its directors persons who were not stockholders, and said that it expected this condition to be rectified.

The old and new rates are as follows:

	Old rates.	New rates
Business	$1.50	$1.75
Residence	1.00	1.25
Rural, party-line	1.00	1.00

Desk sets are 25 cents a month extra. The rates are payable quarterly in advance, and the company is authorized to bill subscribers 25 cents a month above the net rates, this sum to be allowed as a discount for payment on or before the last day of the current quarter.

The Garretson company has 173 stations, including nine on its rural line.

Ordered to Take Peg Counts and Make Rules Effective.

The Johnstown Telephone Co., of Johnstown, was ordered by the Pennsylvania Public Service Commission, on April 5 to "take peg counts monthly at its Moxham and Main exchanges, and from the data thus acquired place a sufficient number of operators at these exchanges to meet operating necessities."

The company also was ordered to file, post and make effective all rules and regulations regarding the use of its service.

In analyzing the complaints made against the service, the commission found that the patrons were hypercritical; that the company had "unquestionably developed a very exceptional telephone system in Johnstown"; and that the company had been arbitrary in enforcing its rules.

Mountain States Asks Permission to Acquire Wyoming Company.

The Mountain States Telephone & Telegraph Co. has asked authority from the Interstate Commerce Commission to purchase the Peoples Mutual Telephone Co., which operates 100 stations in Laramie county, Wyo.

For some time the Mountain States company has virtually maintained the Peoples company and there is no competition between the two companies. The deal will involve about $8,000.

Equalizes Rate for Stockholders and Non-Stockholders.

In order to avoid discrimination against non-stockholding subscribers, the Lima Telephone Co. was authorized on March 31 by the Wisconsin Railroad Commission to establish a rate of $13 per year for stockholders and non-stockholders. The previous rates were $9 for the former class and $13 for the latter.

The company has 192 subscribers, 131 owning stock and 61 having no stock.

The revenues for last year were $2,085

Like the Steel of Damascus

The Built-in Quality of French Telephone Batteries Counts in Heavy Service

The cavaliers prided themselves upon their swords and rapiers of finest Damascus steel, because the skill and experienced care put into the making of those blades were a guarantee of dependability, of instant response in time of need.

Just as the sword makers of Damascus had to uphold the reputation of their blades, so French shoulders responsibility for keeping its Telephone Batteries up to the standard which has made it profitable for thousands of companies to standardize on French Telephone Batteries. Every cell that leaves the factory can be counted on for a longer life of ready reliability.

FRENCH BATTERY & CARBON COMPANY, *Madison, Wis.*
Atlanta Dallas Denver Kansas City Chicago New York Minneapolis

For years French Telephone Batteries have stood for the highest development of practical battery efficiency.

FRENCH
TELEPHONE BATTERIES

and the expenses, before providing for depreciation, were $2,412, leaving a deficit of $327. The new rate will not permit of an adequate reserve for depreciation, but as the lines are overloaded the commission felt that a higher rate than that paid by the non-stockholders should not be allowed at present.

Sleet Storm Meant Reconstruction —Increased Rates Allowed.

An order issued March 31 by the Wisconsin Railroad Commission, and effective April 1, permits the Eastern Wisconsin Telephone Co. to establish increased rates for service from its exchange at Mt. Calvary.

The Eastern Wisconsin company was one of the worst sufferers from the sleet storm of February, 1922, and has expended a large sum in rehabilitating the property, which rehabilitation amounted to almost complete reconstruction.

The company reports a total of 58 telephones of its own and 49 switched telephones receiving service from the exchange.

The rates which the company has been using and those which it now uses are:

	Old rates.	New rates.
Business	$1.25	$1.75
Residence	1.00	1.50
Rural business		1.75
Rural residence		1.50
Rural switching service	.625	.625

Under the new schedule the rural business circuits are limited to eight telephones. All the circuits are of metallic construction.

Summary of Commission Rulings and Schedule of Hearings.

INTERSTATE COMMERCE COMMISSION.

April 6: Pacific Telephone & Telegraph Co. authorized to assume control of the Willamette Telephone Co., of Dallas, Ore.

April 6: Application filed by the Mountain States Telephone & Telegraph Co. for authority to purchase the property of the Peoples Telephone Co., operating in Laramie county, Wyo.

CALIFORNIA.

April 5: Authority given the Sunland Rural Telephone Co. to increase its rates approximately 15 per cent.

ILLINOIS.

March 20: Order entered suspending until July 27 proposed rates for service by the Capron Home Telephone Co. in Capron.

March 20: Proposed rate schedule of the Elmwood Telephone Co., for service in Elmwood, suspended until July 27.

March 20: Order issued suspending until July 27 proposed rate schedule of Millstadt Telephone Co. for service in Millstadt.

March 22: Winnebago County Telephone Co., of Rockford, authorized to issue and sell $40,000 of its first mortgage bonds so as to net the company not less than 95 per cent of their face value.

March 22: Approval given to agreement dated January 17, 1923, between the C. B. & Q. R. R. Co. and the Bureau County Independent Telephone Co., of Princeton, as relates to an undergrade telephone cable crossing at Walnut.

March 22: Order entered extending until May 22 period of suspension of the proposed rates of the Belvidere Telephone Co. for service in Belvidere.

March 27: Murdock Mutual Telephone Co. authorized to purchase from W. F. Murdock and others, copartners under the firm name of Murdock Mutual Telephone Co., the entire property owned and operated by them in and adjacent to the village of Murdock, for $1,500 of the par amount of the capital stock of the corporation; Murdock Mutual Telephone Co. granted a certificate of convenience and necessity to construct, maintain, and operate a telephone system in the territory served by the existing company; also permitted to issue $1,500 aggregate par amount of its capital stock.

March 27: Order entered permitting to remain in effect until further order rate schedule IPUC 4 of the Macoupin County Telephone Co. for service in Carlinville and vicinity; company not required to make reparation to its subscribers under the present rate schedule; directed to provide a reserve against depreciation.

March 27: Supplemental agreement dated January 15, 1923, between the Illinois Bell Telephone Co. and the Pike County Telephone Co., of Pittsfield, modifying toll line traffic agreement, approved.

March 29: In the matter of suggestion of M. K. Guyton that citation be issued relative to the rates of the Northern Illinois Telephone Co. for service in Compton and West Brooklyn; ordered that accounting department investigate and report, before a citation is issued.

April 3: Application filed by the Sangamon County Telephone Co., of Pawnee, for authority to issue $25,000 par value of its first mortgage gold bonds, and to execute a trust deed to Eli Weber as trustee.

April 16: Application filed by the Illinois Bell Telephone Co. for authority to increase its capital stock to $10,000,000.

April 18: Hearing held in Springfield on complaint of J. Frost and others as to service furnished by the Murphysboro Telephone Co. in the vicinity of Cypress.

April 18: Hearing held in Springfield on proposed rates of Illinois Bell Telephone Co. for service in Beardstown and vicinity.

April 18: Hearing held in Springfield on petition of the Elmwood Telephone Exchange, of Elmwood, for new toll rates and connection charges, rules and regulations.

April 19: Hearing held at Springfield on application of the Young Telephone System for authority to borrow $800 for a period of four years at a rate not exceeding 6 per cent, secured by a mortgage on its telephone property.

INDIANA.

March 31: Zenas Telephone Co., of Nebraska, authorized to increase its rates to $1.00 a month for business and 75 cents for residence. The company has 174 subscribers.

April 3: Order entered setting aside ordinance of the city of Decatur which required the Citizens Telephone Co. to pay a fee of 25 cents a year for each telephone pole in the city.

MICHIGAN.

April 7: Michigan State Telephone Co. authorized to issue $19,000,000 of stock for the purpose of reimbursing the American Telephone & Telegraph Co.

MISSOURI.

April 9: In the matter of petition of the Mt. Vernon Telephone Co. for authority to increase the rates at its Sarcoxie exchange; it appearing that the Sarcoxie exchange has been sold to R. M. Snow—which action automatically closes the case—petition dismissed.

NEBRASKA.

April 9: In the matter of the application of the Wehn Telephone Co. for permission to make a desk set charge; ordered that the company be authorized, after May 1, to make an additional charge of 25 cents a month for such service with the proviso that where a subscriber desires to take a cheaper service there shall be no charge for installation.

April 9: In the matter of the application of the Kinkaiders' Mutual Telephone Co., of Tryon, for the discontinuance of a ten-cent charge for connections with the Sutherland Telephone Co.; found reasonable and granted.

April 9: Complaint filed by Otto Gurth, of New York, against the American Telephone & Telegraph Co., alleging that he had been refused service because of failure to pay report charge.

April 10: Complaint filed by C. B. Cox of the Mullen Telephone Co. against the Virginia Telephone Co. and connecting farm mutuals that they refuse to pay charges for service rendered.

April 10: Complaint filed by Frank Lovelace, of Meadow Grove, against Monroe Telephone Co., alleging improper rental collection charge.

April 10: Complaint filed by Riverton-Franklin Township Telephone Co. against Republican Valley Telephone Co., of Franklin, alleging unauthorized charge had been made for switching service.

April 11: Complaint filed by Lyman H. Andrews, of Scottsbluff, against the Platte Valley Telephone Co., alleging that it insists upon collecting a business rate for telephones in the residences of field men for beet sugar factory company.

April 11: Complaint filed by Charles H. Merrill against Lincoln Telephone & Telegraph Co., asking for flat rate charge for service between Edgar and Clay Center.

April 12: Application filed by the Ames Creek Telephone Co., of Obert, asking for an increase in rates averaging 15 per cent.

April 12: Application filed by the Skeedee Telephone Co., of St. Edwards, asking for increases in certain rates, following the consolidation of its property with that recently purchased by it from the Northwestern Bell Telephone Co.

OREGON.

April 7: Hearings in rate case of the Pacific Telephone & Telegraph Co. to be resumed June 4 in Portland.

PENNSYLVANIA.

March 31: Supplement to its tariff, affecting summer cottage rates, filed by the Cochranton Telephone Co., of Cochranton.

April 5: Johnstown Telephone Co., of Johnstown, ordered to take peg counts monthly at two of its exchanges, to hire enough operators to care for traffic, and to make effective all rules regarding the use of service.

TENNESSEE.

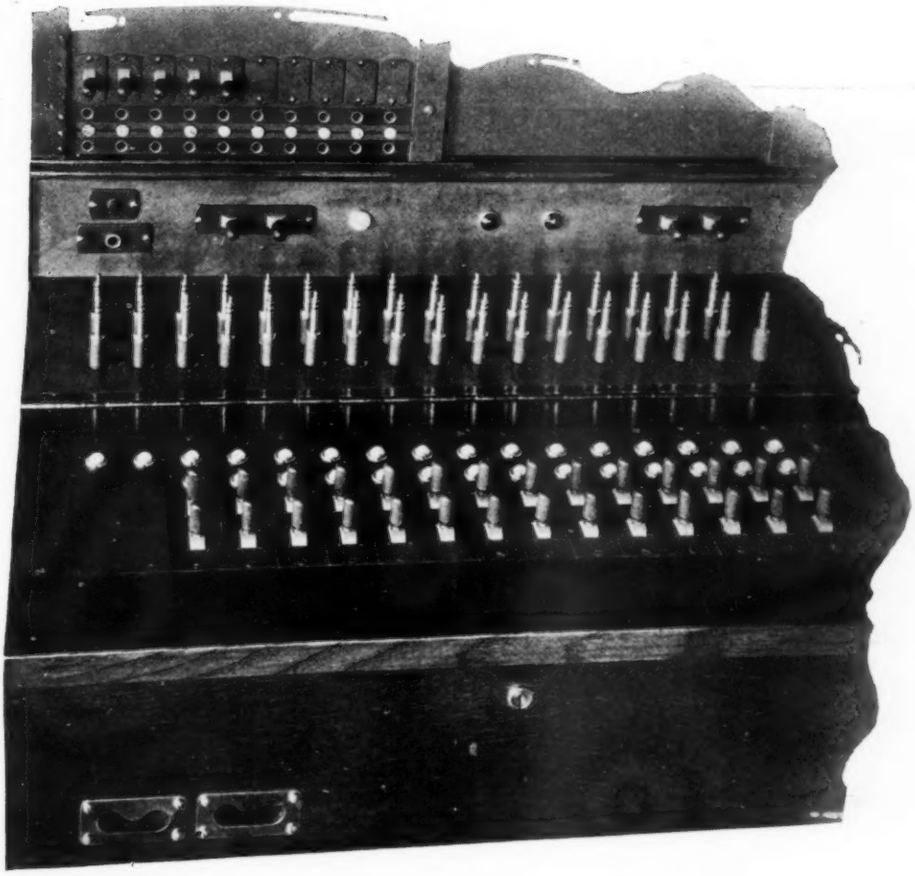
April 7: Hearing held in Nashville on temporary rates previously allowed the Cumberland Telephone & Telegraph Co.

WISCONSIN.

April 11: Pewaukee-Sussex Telephone Co., of Pewaukee, granted schedule of increased rates for service to summer resorts.

April 11: Annaton-Preston Telephone Co. authorized to establish as of May 1 its proposed increased rate schedule; also to discontinue the so-called Herrod switch upon provision of facilities for connecting subscribers on that line to the switchboard at Stitzer.

Supervision Similar to That of Common Battery for Magneto Boards



PROSPEROUS and up-to-date operating men know that positive and dependable supervision is conducive of the best service.

During the past three years numerous telephone companies have adopted Lamp Supervision as *one* means of speeding up their service. That is, companies operating magneto boards with clearing out drop supervision, have found it advisable to remove the clear out drops entirely, and install Lamp Supervision to enable the giving of more speedy and efficient service.

Space does not permit of lengthy descriptions, but we may touch upon one or two advantages of Lamp Supervision. When subscribers ring off in the usual manner, they actuate the armature of a relay, which lights a supervisory lamp in the key shelf. This lamp remains lighted until the operator opens the listening key to monitor the call.

Lamp Supervision has features that will appeal to you, if investigated. Our engineering department is at your disposal, without obligation on your part.

Monarch Telephone Manufacturing Co.

GENERAL OFFICES AND FACTORY

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Tel-Electric Co., Houston, Texas
Hendrie & Bolthoff Mfg. & Supply Co., Denver, Colo.
Electrical Supply Co., New Orleans, La.
Coker Electric Supply Co., Los Angeles, Cal.

Please tell the Advertiser you saw his Advertisement in TELEPHONY.

Personal and Biographical Notes

A. F. Adams, of Kansas City, Mo., widely known in the telephone field, has been elected to the directorate of the Missouri-Kansas-Texas Railroad Co., the reorganized company which took over the lines of the K. T. company on April 1.

A. F. Adams, Banker, and One of the Big Telephone Men of the Country, Is Now a Railroad Director.

Although it is one of the system's most important traffic gateways, Kansas City has not previously had representation on the directorate.

Through Mr. Adams' service on the board of directors the railroad company anticipates keeping more closely in touch with Kansas City's traffic needs and participating more actively in its commercial development.

Mr. Adams is president of the Kansas City Telephone Co.; of the Automatic Electric Co., Chicago; chairman of the board of directors of the Commerce Trust Co., of Kansas City, one of the largest banking institutions in the Middle West; and is interested in and holds office in many other business enterprises of Theodore Gary & Co., of which organization he is president.

A. L. Wilson, who has been in charge of the division of telephone and telegraph engineering of the California Railroad Commission, resigned on March 31, to engage in general private practice in consulting and engineering work in the telephone field.

Mr. Wilson, who graduated from the University of the Pacific, now the College of the Pacific, was connected with various telephone companies on the Pacific Coast for 15 years, and entered the service of the commission as assistant rate expert when the late John M. Eshleman was its president.

He became head of the division in 1913 and served as a member of the joint committee on inductive interference from 1913 to 1917.

W. J. Dodge has been appointed telephone and telegraph engineer of the California Railroad Commission to take the place of A. L. Wilson, who has resigned to take up private practice,

Mr. Dodge graduated from Stanford University in the class of 1913 in electrical engineering. After graduation he spent five years with the American Telephone & Telegraph Co. in New York City and in California in connection with the inductive interference investigation carried on under the auspices of the California Railroad Commission.

Since 1918 Mr. Dodge has been employed by the California commission as assistant engineer in the gas and electrical division, specializing on public utility service and rate matters.

Charles F. Smith, of Skowhegan, Me., has been appointed manager of the Somerset Farmers' Coöperative Telephone Co. to fill the office for the balance of the year, succeeding the late A. M. Danforth.

Mr. Smith is a graduate of the University of Maine, electrical engineering course, class of 1910. He is well fitted to assume his new duties, having since his graduation been employed for two and one-half years with the Western Electric Co. at Chicago, for two years with the Manhattan Electric Co. in Chicago, and for two and one-half years with the Northern Electric Co. in Montreal.

He was also for two years with the Signal Corps of the Army in the World War, having the rank of captain.

G. N. Anderson, transmission engineer for the Northwestern Bell in the Minnesota division engineer's office, has been transferred to Omaha to become Nebraska division transmission engineer. **V. C. Frazell** has been transferred from the position of chief clerk of the employes' benefit fund committee to chief clerk of the general superintendent of plant at Omaha, and has been succeeded by **James C. Peterson,** a committee supervisor. **E. A. White** has been made office manager, general auditor of receipts office, Omaha.

Milton Barratt, former commercial engineer for the Lincoln Telephone & Telegraph Co. has been made assistant plant superintendent, and has been succeeded by H. S. McCulla.

M. W. Smith, wire chief, Tri-State Telephone & Telegraph Co., Rochester, Minn., has been transferred to the staff of the chief engineer, St. Paul.

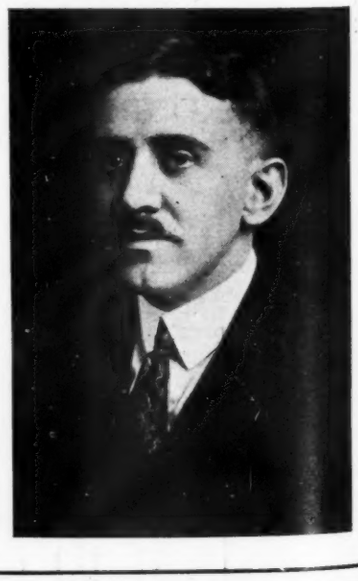
J. B. Holton, formerly local commercial manager of the Tri-State exchange, Northfield, Minn., will become wire chief at Rochester. **Everett Phelps,** toll line troubleman, St. Paul, has been transferred to Northfield as local manager, succeeding Mr. Holton.

Mr. Smith has been associated with the Tri-State Telephone & Telegraph Co. since 1906, entering the service at Minneapolis. At the time of the division of telephone territory in July, 1918, he was transferred to St. Paul as service chief of the Garfield exchange. Three years later he was made automatic supervisor and continued in that position until appointed wire chief at Rochester.

L. O. Painter, acting chief engineer during the past six months for the Tri-State Telephone & Telegraph Co., St. Paul, Minn., became chief engineer, April 16, in accordance with an announcement issued by Geo. K. Gann, general superintendent.

Mr. Painter has been a very thorough student of telephony throughout the 15 years he has been occupied in this field. His earlier efforts were directed towards the construction of telephone plants in various cities throughout the United States and at least two in Canada.

Among those in the building of which he took an active part, are included plants



L. O. Painter, Chief Engineer of the Tri-State, St. Paul, Has a Wide Experience in Plant Construction Work.

at Lincoln, Neb., Houston, Tex., Dallas, Tex., Buffalo, N. Y., Indianapolis, Ind., Lorain, Ohio, Hazelton, Ia., St. Paul and Minneapolis, Minn., Edmonton, Alta, and Regina, Sask., Canada. For two years he

COLUMBIA DRY CELL
No. 6.
TRADE
This cell is intended for open circuit and intermittent service, and has the highest efficiency and greatest recuperation of any dry cell manufactured.
IT IS DESIGNED AND MADE FOR THE MAN THAT SEEKS THE BEST, BEING GOVERNED BY QUALITY NOT PRICE
MANUFACTURED BY
NATIONAL CARBON CO. Inc.
Long Island City, New York, U.S.A.
Patented September 6th, 1910

Columbia Telephone Batteries are unlike humans—these Gray Labels, for example, eat only while they work. While the receiver's hung up, they quit. The net result is that they conserve their stock of food—and cost less per month of service. Fahnestock Spring Clip Binding Posts at no extra charge.

NATIONAL CARBON COMPANY, INC.
Long Island City, N. Y.

Atlanta Chicago Cleveland
Kansas City San Francisco

Columbia Telephone Batteries

"less cost per month of service"

was engaged in general maintenance work at Van Wert, Ohio, and was, for 11 years, with the Automatic Electric Co., Chicago.

While with the Automatic Electric Co., Mr. Painter spent several years on installation work in various capacities from assistant installer to installer in charge; about two years in efficiency engineering work and conducting the factory training school for student installers and engineers.

For two years he was engaged in engineering the unification of the manual and automatic exchanges in St. Paul and Minneapolis and about an equal amount of time as superintendent of installation in the Twin Cities carrying the unification work in those two cities through to a successful completion. This task behind him, he was engaged as equipment engineer for the Tri-State for about 2½ years and until named acting chief engineer.

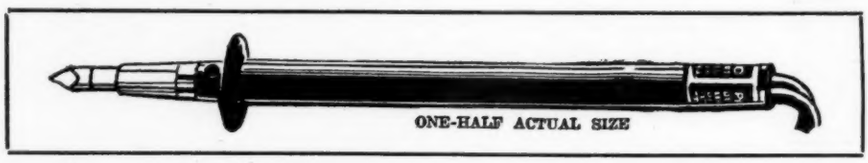
From Factory and Salesroom

Convention: Iowa, Des Moines, April 24-25

Small Electric Soldering Iron for Fine Work.

An electric soldering iron for fine work, said to be the smallest electric soldering tool on the market, is that shown in the accompanying illustration. It is used by many leading manufacturers and governmental departments and weighs about two ounces.

It is supplied with large and small tips, both of which are interchangeable, and composed of german silver. The heating element is of platinum, which is considered the best obtainable and used only in the finest instruments.



The Post Electric Soldering Iron, Excellent for Fine Work.

The handle is of bakelite, about the size of a fountain pen, and is said to be always cool.

In operation, this soldering tool consumes about one-half to three-fourths of an ampere. The cost of operation is about 6 cents per day, based on continual eight hours' use of electric current. The upkeep of the tool is a minimum.

This electric soldering iron may be used with any current or a 12-volt battery, a series current tap being provided which uses a standard electric light bulb for the resistance.

Complete information may be obtained regarding this soldering iron upon application to the manufacturers, the Post Electric Co., department G, 30 East 42nd street, New York.

Iowa Telephone Men Operate Radio Station 9-ZAA.

F. M. Lantz, manager of the Farmers' Mutual Telephone Co., Clarinda, Iowa, and R. E. Ward, also of that company, have designed, constructed and are now operating the radio station shown in the accompanying illustration. The outfit was built for efficiency, for compactness and for neatness.

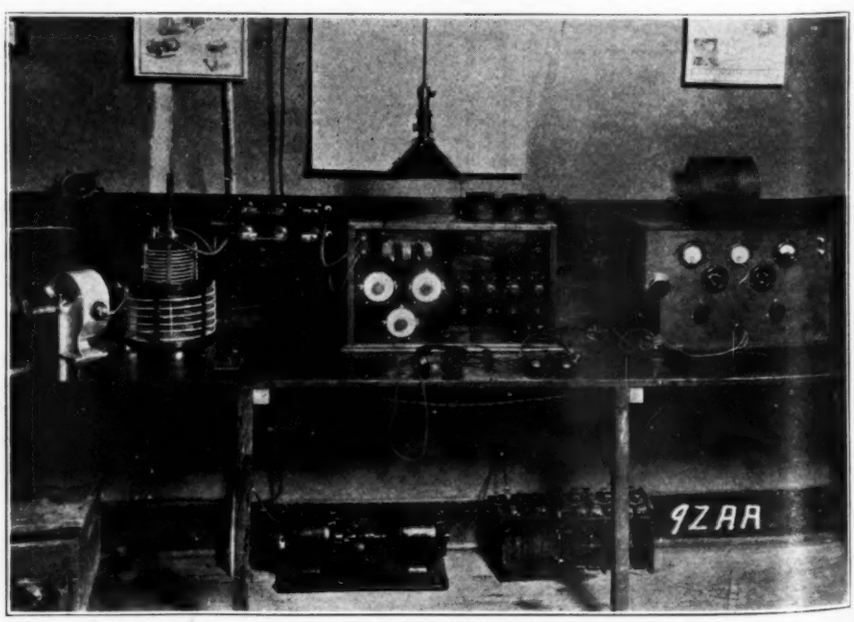
The transmitting apparatus is contained as far as possible in the cabinet shown at the right, however the motor generator and the filament storage batteries are located under the operating table.

Mr. Lantz states that the feature of this 50-watt outfit is the circuit, which does not depend on the antenna capacity for operation. The benefit derived from such a construction is that there is no variation due to antenna swinging. The radiation obtained without forcing the oscillator tube is slightly over six amperes, with little or no radiation in the ground circuit.

Most of the transmitting apparatus was purchased from the Radio Corp. of America. The pedestal type microphone, however, is a Stromberg-Carlson product, the No. 1-L with a No. 7-L transmitter.

Mr. Lantz also states that the receiver does not depend on a coil coupling or variometers for controlling the regenerative action when tuning, but depends on the amount of bypass through the condenser, which is bridged across the "B" battery and the head set.

A detector and a three-stage amplifier are used in connection with DeForest honey-comb coils and DeForest condensers. Satisfactory listening is generally accomplished with one stage of amplification, connected to a Western Electric loud speaker. The head sets shown in the foreground are the Stromberg-Carlson Nos. 1-A and 2-A.

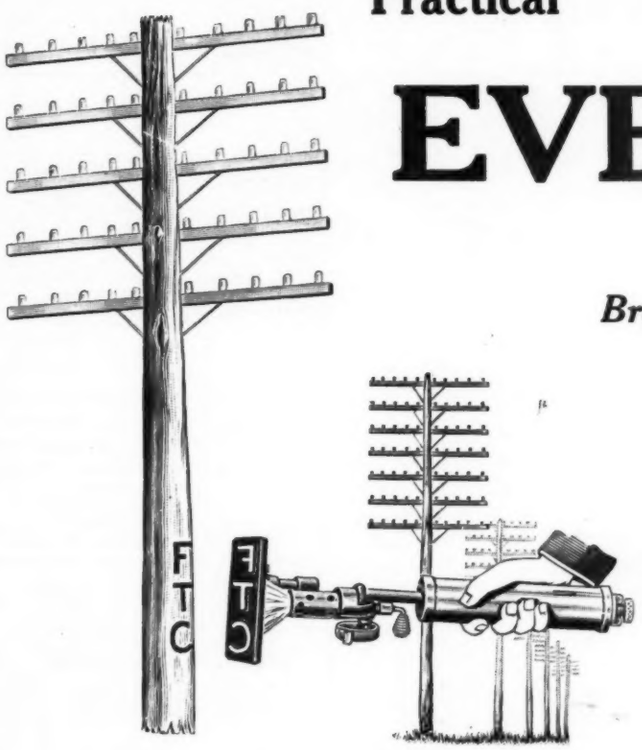


Radio Sending and Receiving Equipment of F. M. Lantz and R. E. Ward, of Clarinda, Ia.

Learning to Build and Buy Radio Equipment.

"Get rich quick." How easy it sounds! And how many people have tried it—always without success! The latest field for the "get-rich-quick" artists appears to be in radio, judging from the large number who have gone into it. What do most of these newcomers in the field know about design? About production? About service? Very little. They know that a demand exists and they are seeking a quick and profitable harvest.

Meanwhile other companies, the stand-



Practical Economical Efficient

EVERHOT

The 3-in-1 Tool
Branding Iron, Soldering Iron
and Blow Torch

For descriptive literature write—

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Maywood Illinois

OR

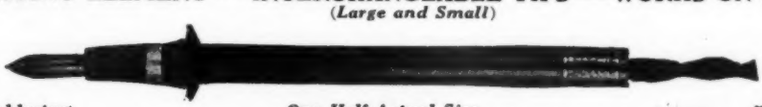
Stromberg-Carlson Tel. Mfg. Co.
Chicago, Illinois

SOLDERING

The delicate connections, small units and all fine work in general is as simple as writing with a lead pencil, if you use

THE POST SOLDERING IRON

PLATINUM HEATING ELEMENT——INTERCHANGEABLE TIPS——WORKS ON ANY CURRENT
(Large and Small)



The smallest electric soldering instrument on the market

One Half Actual Size

List price $6.00

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"COPPERWELD" TELEPHONE WIRE

TRADE MARK REG. U.S. PAT. OFF.

MADE BY THE MOLTEN WELDING PROCESS

Where No. 10 hard-drawn copper or No. 12 BB Galvanized iron telephone wire would be used, a No. 12 Copperweld Telephone Wire may be properly selected. 70 lbs. excess weight of wire per mile is avoided.

	Diam.	Breaking Weight	Weight per Mile	Relative Factor of Safety: With ½" Ice and 8 lb. Wind Pressure	Relative Factor of Safety: With 15 lb. Wind Pressure. No Ice.
10 B&S hard-drawn Copper	.102"	528 lb.	166 lb.	98%	80%
12 BWG BB Galvanized Iron	.109"	476 "	170 "	88%	68%
12 B&S Copperweld	.081"	520 "	96 "	100%	100%

Copperweld does not rust. It stays up under sleet loads and wind pressure when other wires would be wrecked.

COPPER CLAD STEEL COMPANY, Braddock P. O., Rankin, Pa.

Please tell the Advertiser you saw his Advertisement in TELEPHONY.

Valuations—Supervision—Plant—Inductive Interference
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Can arrange a moderate amount of financing.
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LIGHTNING ARRESTERS
Manufactured by
MINNESOTA ELECTRIC CO.
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SPRING
CONSTRUCTION WORK?
How about your lines, Mr. Telephone Manager,—are they in good shape for the rest of the year? If replacements and repairs are necessary—
BETTER MAKE
YOUR ESTIMATES NOW
Then Send in Those
Orders to
Telephony Advertisers

ard producers, are studying, designing, planning. Their products are being thought out before they are manufactured. Their radio apparatus is designed to look as far into the future as possible, so rapid are developments in this new science and pastime. And back of all these organizations of thinkers and workers is the sound element of service, of dependability of product, which means solid satisfaction to purchasers and sure performance of the apparatus. Whether you are entertaining guests with a concert, or listening to an important news message, lecture, or address, you want dependable results.

Never before the coming of radio has the public in general been so prone to build at least a part of their own apparatus, for any purpose. Never before have Tom, Dick and Mary realized so well what manual skill and dexterity mean, nor have they so thoroughly appreciated the value of experience in production.

Thousands of radio enthusiasts have gotten acquainted with a soldering iron, for example, who never before knew that such a thing existed. Boys, men and even women have wired coils, and assembled sets.

Men from ordinary walks of life have become bench hands in a degree. The man from the office, as well as the shop, talks glibly of "hook-ups" and complicated circuits, connecting strangely named pieces of apparatus with even stranger parts to play in this wonderful new field of science.

The bookkeeper on his homeward journey talks to his friend about wave lengths in astonishing dimensions, and his friend can usually reply in equally mysterious terms of capacity and inductance.

Those who have gone so far as not only to wind coils, but make complete set assemblies, have learned another lesson besides that of radio terminology, and have learned it well. "What lesson?" you may say. The chorus of radio fans the world over might reply: "The lesson of experience in production." Men, women and children never tried to make wagons, sewing machines or automobiles for their own use (or, at least, very few of them did), but many, indeed many, have tried to build radio sets, and they now recognize a piece of properly made apparatus when they see it.

They have learned that to make an efficient product requires experience—experience in designing, in the selection of raw materials in manufacturing, assembling and inspecting; in fact, experience in all stages of production clear through to the ultimate consumer.

So we can better appreciate why some radio sets are good, some bad and some indifferent. Their value varies with the experience and the materials that have gone into them. The poor product fails to satisfy, and so the "get-rich-quick"

The "STEWART" Test Cabinet
Tells you if your line is short, crosses, or grounded and how many miles it is from you. So simple the operator can use it as easily as the men. Reads direct.
Sent on trial
STEWART BROTHERS
Ottawa, Ill.

KESTER *Acid-Core* WIRE SOLDER
"REQUIRES ONLY HEAT"
SAMPLE FREE
CHICAGO SOLDER CO. 4201 Wrightwood Ave

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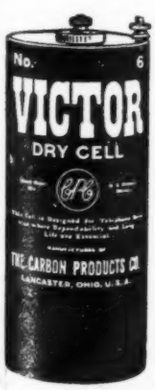
A Company That Was Wasting 240 Fresh Batteries Every Year—

THE company in question was using but an average of one barrel of dry cells a month, or 1500 cells a year. This outlay, at 29c per cell represented a cost of $435.00. By buying Victor Dry Cells at a saving of 4c per cell, a total saving of $60.00 a year was effected.

This $60.00 is sufficient to buy 240 Victor Cells, so it can be assumed there was a gross waste of this many cells. Furthermore, Victor Dry Cells are giving this same company 22% longer service than the more expensive cells. Estimating that by using Victors 22% of 1500 cells would answer the same purpose as the original requirement, it might be said that the purchaser

bought 330 more cells than actually required.

Think this over. Comparing Victor Dry Cells with others on the market, the price is all out of proportion, but our facilities are such as to lend easier the marketing of quality batteries at a lower cost. The quality invites comparison.



VICTOR DRY CELLS

have a higher voltage to enable them to function under conditions that mean exhaustion to other cells.

recuperate faster and more completely.

are made one like the other, careful attention being paid to every detail.

last longer—**that's certain!**

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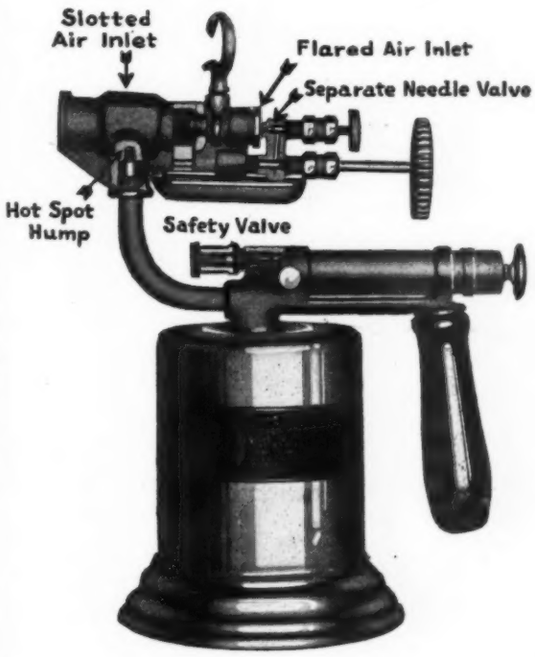
Efficiency of Skilled Workmen Is Greatly Increased by Supplying Them With the Best of Tools



Equip one crew of men with **Turner "Master" Torches** and keep a record of their daily and weekly output compared with a similar crew using old style torches.

The **difference** will amaze you.

TURNER "MASTER" TORCHES

get into action quicker and are at least 400° hotter. They are more convenient to work with.

Their Flame control permits finer, more accurate work. Only **SAFE** Torches made, because they are the only ones with Safety Valve and air release.

They Burn Gasoline or Kerosene.

Our booklet explains many other interesting exclusive Patented Features.

THE TURNER BRASS WORKS
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Rice-Hitt Co., 709 Mission St., San Francisco, Calif.
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Turner Brass Works, 36 Murray St., New York, N. Y.
A. H. Dveney & Co., 4th National Bank Bldg., Atlanta, Ga.

manufacturer is singed in his own flame.

And that is the reason why the Kellogg Switchboard & Supply Co. with many years of high reputation in the Independent telephone field, has been working steadily perfecting a line of radio equipment which can be absolutely depended upon. Its long experience in production. its wide research facilities, its laboratories and skilled engineering department, and above all its intent of thoroughness, have been bent upon these radio parts, with the result that the public can be certain that each and every piece of Kellogg radio equipment will give satisfaction. Kellogg has long said of its telephones: "Use is the test." This holds true equally of Kellogg radio.

A Small, Handy, Efficient Torch and Iron—The Everhot.

One of the many products which the Everhot Mfg. Co., of Maywood, Ill., has placed on the market as an aid for telephone construction work is the Everhot self-heating soldering iron, blow torch and branding iron.

The brands are made to any special design or trade mark. When it is to be used as a soldering iron, the brand is simply detached and one of the tips or attachments inserted. Another easily made adjustment, and the iron becomes a blow torch.

The burners are made of the best materials obtainable and are of heavy type, designed to stand hard use. The iron has a patented self-cleaning needle valve and a needle valve seat to take the strain off the valve. The makers claim that the valve will outlast the torch.

The pre-heating chamber runs on both sides of the flame tube, giving a dry gas—

The "Everhot" Self-heating Soldering Iron.

thus vaporizing each drop of gasoline and delivering the maximum heat units. A special alloy steel tube connects the fuel tank with the burner, in order to keep the tank cool at all times.

The tool is of a handy size, light weight and embodies many new features that facilitate the work of the lineman and enable him to complete more soldering jobs in a day. The lineman can carry it in his belt or put it in his pocket, and it can be used in any position and in any wind, state the manufacturers.

A method suggested by one telephone man for increasing the efficiency of the torch is to use a 5-lb. ladle to catch the drip when the molten lead is poured onto a joint, and to pour the lead back into a 2-lb. ladle, which is constantly heated by the flame against it.

There are a number of attachments to the instrument which give variety to its usefulness and make it a general utility tool.

The Everhot standard blow torch presents many exclusive features and is another Everhot product which is finding favor among the telephone men.

Concerning these and other labor-saving devices for telephone construction work, the Everhot Mfg. Co. will be glad to give complete information.

Stromberg-Carlson Report Shows Good Business Last Year.

The annual report of the Stromberg-Carlson Telephone Mfg. Co., of Rochester, N. Y., for 1922, shows the company to be in a sound condition, with a surplus of about $800,000 as of December 31. The net profit for the year was $317,400 and four cash and a stock dividend were declared during the year.

The balance sheet as of December 31, 1921, follows:

ASSETS.

Fixed assets:		
Machinery, factory equipment, tools, etc., less reserves.		$ 332,658
Current assets:		
Raw materials, supplies, work in process and finished product at cost or market whichever is lower	$1,177,223	
Accounts receivable, less reserve	557,285	
Notes receivable	204,207	
United States and Canadian government bonds (market value $447,154)	440,637	
Cash on hand and in banks	105,664	2,485,016
Deferred charges		22,704
		$2,840,378

LIABILITIES

Capital stock:		
Auth'zed..$2,000,000		
Issued	1,680,000	
Less—Held in company's treasury	10,000	$1,670,000
Current liabilities:		
Accounts payable including accrued wages and taxes	90,978	
Provision for federal income tax	40,000	130,978
Reserves:		
For contingencies	50,000	
For market fluctuations in inventory values	200,000	250,000
Surplus		789,400
		$2.840,378

The profit and loss and surplus account statement reflects this condition:

Surplus at December 31, 1921		$1,440,584
Net income for the year, after deducting depreciation, but before interest and federal tax.	$359,872	
Deduct—Interest paid.	2,492	
	$357,380	
Deduct—Provision for federal income tax	40,000	
Net profit for year 1922		317,380
		$1,757,964

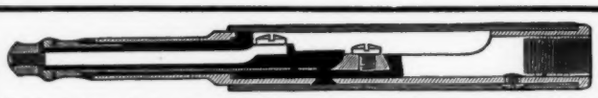
POSITION WANTED

POSITION WANTED—All around telephone man with five years' experience and wife (five years as operator) wish to connect with good up-to-date telephone company starting May 20th. State full particulars in first letter. Address 5269, care of TELEPHONY.

WANTED TO TRADE

WANTED TO TRADE—160 acres all in wheat, new three-wire fence, located three miles from Horace, Kans., for telephone exchange or controlling interest in same. In answering, state price per telephone in use. Address B. W. Ammerman, Scotia, Neb.

WILL TRADE—160 acres improved dairy farm, one-half mile from concrete Victory Highway, 28 miles from Kansas City, for small telephone plant located in northeastern Kansas or near Kansas City in Missouri—two or three hundred telephones. Address Foster Laming, Tonganoxie, Kans.



Switchboard Plugs, All Types, U. S. Patent 1302471
INSULATION IN *ONE* UNIT. IN USE IN FIVE CONTINENTS
TELEFON FABRIK AUTOMATIC
7 AMALIEGADE. COPENHAGEN, DENMARK

NORTHERN POLE and LUMBER COMPANY
POLE SERVICE
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Hot Galvanized Pole Line Hardware
M. LANZ BOLT CO. PITTSBURGH, PA.

To insure delivery on time order your poles as early as possible.

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